

# NAVAL POSTGRADUATE SCHOOL

# **MONTEREY, CALIFORNIA**

# **THESIS**

IMPLEMENTATION AND PERFORMANCE
EXPLORATION OF A CROSS-GENRE PART OF SPEECH
TAGGING METHODOLOGY TO DETERMINE DIALOG
ACT TAGS IN THE CHAT DOMAIN

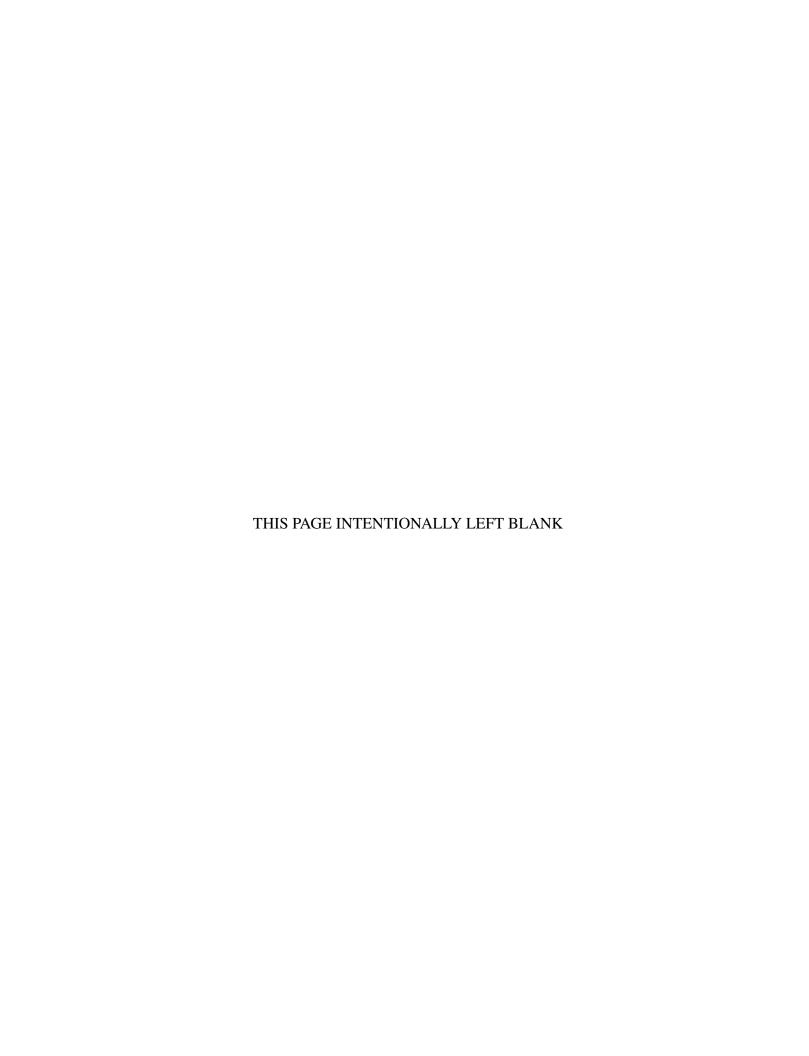
by

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#### 14. ABSTRACT

Internet Relay Chat is a popular means of communication. Because chat data does not follow established grammatical rules, traditional machine learning algorithms perform poorly in tasks such as part-of-speech and dialog-act tagging, and yet the volume of data created makes human analysis impractical. We present a cross-genre part-of-speech tagging methodology and analyze its effectiveness in determining the dialog-act classes of chat posts. Previous methods for determining part-of-speech tags focused on accuracy, were computationally expensive and required human verification. We show that our cross-genre maximum likelihood estimation part-of-speech tagging performs virtually identically to hand-tagged parts-of-speech and that accurate part-of-speech tags are not required for acceptable automatic dialog-act determination. Furthermore, we show that a simple naïve Bayes classifier achieves the same performance in a fraction of the time as a carefully trained neural network.

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# IMPLEMENTATION AND PERFORMANCE EXPLORATION OF A CROSS-GENRE PART OF SPEECH TAGGING METHODOLOGY TO DETERMINE DIALOG ACT TAGS IN THE CHAT DOMAIN

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Submitted in partial fulfillment of the requirements for the degree of

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Internet Relay Chat is a popular means of communication. Because chat data does not follow established grammatical rules, traditional machine learning algorithms perform poorly in tasks such as part-of-speech and dialog-act tagging, and yet the volume of data created makes human analysis impractical. We present a cross-genre part-of-speech tagging methodology and analyze its effectiveness in determining the dialog-act classes of chat posts. Previous methods for determining part-of-speech tags focused on accuracy, were computationally expensive and required human verification. We show that our cross-genre maximum likelihood estimation part-of-speech tagging performs virtually identically to hand-tagged parts-of-speech and that accurate part-of-speech tags are not required for acceptable automatic dialog-act determination. Furthermore, we show that a simple naïve Bayes classifier achieves the same performance in a fraction of the time as a carefully trained neural network.

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# CHAPTER 1: INTRODUCTION

## 1.1 The Chat Domain

Since its introduction in the late 1980s, Internet Relay Chat (IRC) has become popular worldwide as a means of real-time communications. With hundreds of thousands of users each day, the volume of data created is overwhelming for complete human analysis. Natural Language Processing (NLP) techniques can be applied for applications such as social networking analysis, data-mining and detection of illicit uses.

## 1.1.1 General Chat Characteristics

IRC chat "rooms" are hosted on servers around the world. Some of these rooms are devoted to specific topics, while others are simply gathering places for social interaction. Users log in to rooms of their choosing and select an alias for self-identification. They are then free to type their inputs, which are then broadcasted to all participants in the room. There are also functions available that allow users to hold "private" conversations with other selected users. In these private rooms, only those users invited to participate see others' posts.

Due to IRC's synchronous nature, users may provide their inputs at any time. There is no requirement for turn-taking as commonly found in spoken dialog. Hence, IRC data streams frequently consist of multiple, interleaved conversations further complicating analysis. For example, when a user presents a question it is available to all users present in the respective chat room. The next item appearing in the stream may not be a response to this question and may, in fact, be another, unrelated question by a different participant. Correlating questions and subsequent answers becomes a difficult task, particularly in active chat rooms with many participants. The problem of identifying who said what to whom is called *conversational thread extraction*. A good source for understanding this problem and other chat specific issues is Adams [1].

Because chat users are not generally constrained by strict language semantics or structure, the task of identifying questions amongst other types of posts is also difficult. While traditional written language contains punctuation (question marks) that identify illocutionary (or dialog) acts as questions, these clues are frequently missing in chat messages. Identifying questions, as

opposed to other dialog acts, is therefore a difficult task. The ad-hoc nature of chat usage also results in unique features, including symbols intended to convey emotions ("emoticons") and intentionally misspelled words, not typically found in traditional language usage. As a result, parsing algorithms that are trained on structured language examples perform poorly in the chat domain.

Previous work in the chat domain has focused on part of speech and dialog act tagging as a foundation for higher-level analysis. These tasks include conversational thread extraction, data-mining and social-networking analysis. Due to the aforementioned structural differences between chat data and oral or written data, these tasks are not easily automated and human interaction is frequently required. The volume of data created by heavily populated chat servers, however, makes such human involvement infeasible. Development of NLP techniques to assist in these tasks, in this particular domain, is therefore desirable.

While this thesis is focused on IRC data, the techniques apply to any chat system such as Yahoo, AOL Instant Messenger or even military applications such as tactical chat.

## **Chat in the Military Domain**

Just as chat is a popular form of communication for the general public, tactical military chat has become an important command and control tool for forces operating around the world [2]. The topics discussed in these chat sessions are more focused toward tactical situations and are structured with user names derived from assigned user duties. This additional structure may provide information useful for higher level analysis such as post-event reconstruction. The information derived from this data may then be used to document lessons learned for follow-on tactical performance improvements.

Eovito provided functional requirements for tactical military chat. Eovito's work included items that we believe would benefit from inclusion of dialog act information such as "Thread Population," "Suppress System Event Messages," and "User Access to Chat Logs."[2] Consider the possibility of a chat participant being able to determine who has asked what questions and what answers were provided without interrupting other users. These functions may serve to filter undesired noise from the conversation thereby increasing the rate of acquiring situational awareness. We believe that such an enhanced filter may benefit from automatically produced dialog act information.

# 1.2 Purpose of this Thesis

This thesis provides an improved method for dialog act tagging chat posts. We show that the use of maximum likelihood estimation part of speech tags nearly equal the performance of computationally expensive, human verified parts of speech in determining dialog act tags in the chat domain. More importantly, our methodology demonstrates that maximum likelihood estimation part of speech tags from a fundamentally different, labeled domain work very well in the chat domain. This is very important, not just for analysis of chat, as it bodes well for new domains of Internet communications as they are invented, deployed and developed.

In fact, this thesis represents new work in the important field of cross-genre machine learning. We show that previous, human-involved investments in another genre can be effectively applied to produce acceptable results in the chat domain. Our work should serve as a foundation for other research in the rapidly expanding field of computer communications.

# 1.3 Organization of Thesis

This thesis is organized as follows:

- Chapter 1 discusses computer-mediated communications and motivation for this thesis.
   We include a brief overview of the chat domain and specific challenges to analysis of the data found there.
- Chapter 2 contains background information on Internet Relay Chat, previous research into chat analysis and the machine learning techniques used in this work.
- Chapter 3 includes our experimental approach to dialog act tagging chat posts. This chapter includes discussions on the sources of data for our part of speech tagger, training and test data. We describe a cross-genre methodology (one that uses data derived from a different domain) that effectively determines dialog act tags in the chat domain. Also included are specific details about feature selection and our experimental approach.
- Chapter 4 provides the results of our work in dialog act tagging chat posts. We also
  provide statistical significance test results for our data. Additionally, we include results
  of experiments to that our results are not skewed by individual author contributions to the
  chat data.

, we summarize achine learning			

# CHAPTER 2: BACKGROUND

# 2.1 Online Chat

The proliferation of computers and increased Internet availability have produced new means for connecting socially and professionally. Some of these new forms of information exchange, in which users pass typed messages to one or more other users, are referred to as computer-mediated communications [3]. Internet Relay Chat (IRC) is one popular form of computer-mediated communication.

Chat "rooms" provide a stage upon which users can express thoughts via typewritten messages called "chat posts" or, simply, "posts." These posts are broadcast to all subscribers logged into the respective chat room. Posts may be composed at any time and are broadcast in the order they are received, interlacing conversations between distinct users and general announcements meant for all participants.

Previous works by Herring and Kucukyilmaz noted that the structure of chat posts differs from that of written text and also from that of spoken language [3, 4]. Examples of specific differences include the use of emoticons (see Appendix A), flexible grammatical rules including punctuation and spelling, and the intentional use of misspelled words to convey emotion or emphasis. These differences present unique challenges when analyzing higher-order characteristics of chat posts such as classification of dialog act and semantic meaning.

# 2.2 Prior and Related Work

In 2006, Lin collected and preserved over 477,000 chat posts from an Internet chat site. The source material was saved from chat rooms that were organized by user age groups, and this organization was maintained. These chat rooms were not limited to particular topics [5]. The goal of Lin's work was an attempt to identify any sexual predators actively participating in these chat rooms.

Forsyth followed Lin with a primary goal of using machine learning algorithms to apply partof-speech tags to chat posts, and secondary goal of exploring potential techniques for automatic dialog act tagging of chat posts. In the course of his work, Forsyth removed all personally identifiable information from 10,567 chat posts sampled from different chat rooms. This privatized subset of Lin's work has become known as the Naval Postgraduate School (NPS) chat corpus. Forsyth tagged the NPS chat corpus with parts-of-speech and dialog act tags using a bootstrapping method followed by verification by humans [6]. For part-of-speech tagging, he used the

CC	Coordinating conjunction	PRP\$	Possessive pronoun
CD	Cardinal number	RB	Adverb
DT	Determiner	RBR	Adverb, comparative
EX	Existential there	RBS	Adverb, superlative
FW	Foreign word	RP	Particle
IN	Preposition or subordinating conjunction	SYM	Symbol
JJ	Adjective	TO	to
JJR	Adjective, comparative	UH	Interjection
JJS	Adjective, superlative	VB	Verb, base form
LS	List item marker	VBD	Verb, past tense
MD	Modal	VBG	Verb, gerund or present participle
NN	Noun, singular or mass	VBN	Verb, past participle
NNS	Noun, plural	VBP	Verb, non-3rd person singular present
NNP	Proper noun, singular	VBZ	Verb, 3rd person singular present
NNPS	Proper noun, plural	WDT	Wh-determiner
PDT	Predeterminer	WP	Wh-pronoun
POS	Possessive ending	WP\$	Possessive wh-pronoun
PRP	Personal pronoun	WRB	Wh-adverb

Table 2.1: Penn Treebank Tagset. From [7].

Penn Treebank POS tagset (see Table 2.1), and dialog act tagged the NPS chat corpus using Wu et al.'s 15 post act categories (see Table 2.2). Forsyth compared the performance of taggers based on n-grams, hidden Markov models (both discussed in the next section) and Brill taggers [6]. Using his implementation of a Brill tagger trained on the NPS Chat, Wall Street Journal, and Switchboard corpora, Forsyth achieved a 90.8% POS tagging accuracy. In his dialog act tagging effort, Forsyth developed 27 features including lexical and temporal characteristics of chat posts and the number of chat users participating in the chat room of interest (see Table 2.3). He compared the performance of naïve Bayes (discussed in the next section) and backpropagation neural networks in dialog act tagging accuracy. Forsyth recorded an 83.2% dialog act tagging accuracy using a back-propagation neural network with 23 of these features [6].

Tag	Example	Count	Percent
Statement	I'll check after class	3185	30.14%
System	Tom[JADV 11.22.33.44] has left#sacbal	2632	24.91%
Greet	Hi, Tom	1363	12.90%
Emotion	lol	1106	10.47%
Yes-No-Question	Are you still there?	550	5.20%
Wh-Question	Where are you?	533	5.04%
Accept	I agree	233	2.20%
Bye	See you later	195	1.85%
Emphasis	I do believe he is right.	190	1.80%
Continuer	And	168	1.59%
Reject	I don't think so.	159	1.50%
Yes-Answer	Yes, I am.	108	1.02%
No-Answer	No, I'm not.	72	0.68%
Clarify	Wrong spelling	38	0.36%
Other	*****	35	0.33%

Table 2.2: 15 Post Act Classification for Chat. After [8]. - Statistics from NPS Chat Corpus

# 2.3 Machine Learning Techniques

When we use computers to analyze data derived from experience and use this information to predict (in our case, to classify) new data, we are performing machine learning [9]. The volume of Internet traffic, specifically IRC data, necessitates use of computers for any meaningful attempt at analysis of the information being transmitted. Because IRC data is a form of written communication using human language, the analysis of chat data generalizes to a form of natural language processing (NLP). One general goal of NLP is that of classification, where we attempt to determine some higher-level grouping of data. Examples of this effort include dialog act tagging, authorship detection and topic detection.

In the use of computers to process this type of information, we identify features (e.g., words, parts-of-speech, semantic or syntactic structure) from which to draw and test hypotheses.

## 2.3.1 Features

The basis for classification of text data must be some set of features whose analysis sufficiently identifies a particular example's class as opposed to non-classes. One common approach to feature selection in natural language processing is to use the lexical items, sentences, phrases or words, in documents of interest. The basis for probabilistic methods used in NLP involves

Feature	Definition	Rationale
f0	Number of posts ago the poster last posted	Indicator for a Continuer act
f1	Number of posts ago the poster made a spelling error	Indicator for a Clarify act
f2	Number of posts ago that a post contained a '?' but no	Indicator for a Yes / No Answer act
	WRB or WP POS tag	I I C V /N O
f3	Number of posts in the future that contained a Yes of No word	Indicator for a Yes / No Question act
f4	Number of posts ago that contained a Greet word	Indicator for a Greet act
f5	Number of posts in the future that contained a Greet word	Indicator for a Greet act
f6	Number of posts ago that contained a Bye word	Indicator for a Bye act
f7	Number of posts in the future that contained a Bye word	Indicator for a Bye act
f8	Number of posts ago that a post was a JOIN	Indicator for a Greet act
f9	Number of posts in the future that a post is PART	Indicator for a Bye act
f10	Total number of words in post	Longer posts may be Statements and Ques-
		tions, shorter posts may be Emotions and
		Greets/Byes, etc.
f11	First word is a conjunction, preposition, or ellipses (POS tag of 'CC,' 'IN,' or ':')	Indicator for a Continuer act
f12	A word contains emotion variants such as lol, ;-), etc.	Indicator for an Emotion act
f13	A word contains hello or variants	Indicator for a Greet act
f14	A word contains goodbye or variants	Indicator for a Bye act
f15	A word contains yes or variants	Indicator for Yes or Accept acts
f16	A word contains no or variants	Indicator for No or Reject acts
f17	A word POS tag is WRB or WP	Indicator for a Wh-Question act
f18	A word contains one or more '?'	Indicator for Wh- or Yes/No Question acts
f19	A word contains one or more '!' (but not a '?')	Indicator for an Emphasis act
f20	A word POS tag is 'X'	Indicator for an Other act
f21	A word is a system command (. or ! With SYM POS tag)	Indicator for a System act
f22	A word is a system word, e.g. JOIN, MODE, ACTION,	Indicator for a System act
	etc.	
f23	A word is an 'any' variant, e.g. 'anyone,' 'n e,' etc.	Indicator for a Yes/No Question act
f24	A word is in all caps, but not a system word like JOIN	Indicator for an Emphasis act
f25	A word is an 'even' or 'mean' variant	Indicator for a Clarify act
f26	Total number of users currently in the chat room	More users may stretch out distances be-
		tween adjacency pairs

Table 2.3: Initial Post Feature Set (27 Features). From [6].

counting the number of occurrences of selected features in their respective classes.

For example, given a chat post D= "he bought the purple dog," we could compute the probability of D as one item:

$$P(D) = \frac{\text{number of occurrences of } D}{\text{total number of posts in corpus}}$$

or, if we consider each word as a random variable, we could simplify this task by estimating the

probability of D using the chain rule for joint probability:

```
P(\text{he bought the purple dog}) = \\ P(\text{dog}|\text{he bought the purple}) \times P(\text{purple}|\text{he bought the}) \\ \times P(\text{the}|\text{he bought}) \times P(\text{bought}|\text{he}) \times P(\text{he}|\text{start}) \times P(\text{start})
```

But this becomes cumbersome in that it would require us to maintain all the probabilities of all words given all observed previous words. We can simplify this further by making the assumption that the probability of each word is dependent only on a limited number of previous words. This is known as the Markov assumption and it is used frequently in NLP [10]. For example, if we estimate the probability of D based on only using one previous feature (or word in this example):

$$\begin{split} P(\text{he bought the purple dog}) \approx \\ P(\text{dog}|\text{purple}) \times P(\text{purple}|\text{the}) \times P(\text{the}|\text{bought}) \\ \times P(\text{bought}|\text{he}) \times P(\text{he}|\text{start}) \times P(\text{start}) \end{split}$$

or, more generally:

$$P(f_1 f_2 ... f_n) \approx P(f_1) \prod_{k=1}^n P(f_k | f_{k-1})$$
 (2.1)

If we choose to estimate the probability of sentences based on zero previous words, we simply maintain the probability of each individual word and multiply using the chain rule. In this case, our features are called a "bag of words" since the order is not important.

We primarily use n-grams where  $n \in \{1, 2, 3\}$  and indicates the number of individual data elements included in each feature. Throughout this document, 1-grams (or items in the aforementioned "bag of words") are referred to as unigrams, 2-grams as bigrams (these correspond to equation 2.1) and 3-grams as trigrams [10]. In addition to using n-grams made up of individual words, we examine the potential of classifying posts by dialog act using part-of-speech n-grams. For our experiments, we examined the use of 1,2 and 3-grams consisting of parts-of-speech tags and 1 and 2-grams of lexical items (the words themselves.)

#### Parts of Speech (POS)

Because of the aforementioned relaxation of spelling, grammar and punctuation rules in chat, automatic POS tagging in the chat domain has been the focus of other efforts [6, 11]. Traditional

POS taggers apply a variety of approaches to identify each word's part-of-speech as determined by the nature of the word and the context in which it is used. Many words in the English language are appropriately tagged with different parts of speech depending on how they are used. For example, "flies" may either be tagged as a plural noun if it is used to refer to common insects ("He swatted the flies.") or a present tense verb when describing what an airplane does ("An airplane flies.") This disambiguation is, in general, computationally expensive.

Forsyth part-of-speech tagged the anonymized portion of the NPS chat corpus using the Penn Treebank system of tags (see Table 2.1.) For his work, Forsyth used 27 features to compare performance of naïve Bayes, hidden Markov model, and Brill taggers in the determination of chat parts-of-speech classification.

## **Dialog Acts**

Stolcke suggested that a useful, first level of detail in the analysis of discourse structure is dialog act identification [12]. For example, because of chat's aforementioned broadcast structure and interlaced conversations, dialog acts have been shown to provide some assistance in conversational thread extraction [11] or determination of conversation meaning [13].

# 2.3.2 Naïve Bayes Classifiers

Naïve Bayes classifiers are a form of supervised learning. This type of algorithm requires labeled data for training. Across all of the labeled classes, we can determine the probability of each dialog act by counting the example posts of each category and dividing by the total number of posts used for training:

$$P(C_j) = \frac{\text{number of training set examples of } C_j}{\text{total number of posts in training set}}$$

This value is referred to as the "prior" probability of the class  $C_j$  in the training set and it is an important part of our classifier as seen below.

We label the count of feature  $f_i$  as  $count(f_i)$ . Then the probability of  $f_i$  occurring in dialog act class  $C_j$  of words is  $P(f_i) = \frac{count(f_i)}{\text{total number of words in } C_j}$ . We use these counts in the form of a feature vector  $\vec{F} = \{P(f_1), P(f_2), ..., P(f_n)\}$ . Because we have computed these feature counts from each dialog act class, we condition the counts on the feature giving us  $P(\vec{F}|C)$ . However, our classification task requires us to compute  $P(C|\vec{F})$ . To do this we apply Bayes Rule, which

states:

$$P(C|\vec{F}) = \frac{P(C)P(\vec{F}|C)}{P(\vec{F})}$$

The task for our Naïve Bayes classifier is then to find the class  $C_j$  that maximizes  $P(C|\vec{F})$ . We call the class so identified by our classifier  $\hat{C}$  where:

$$\hat{C} = \underset{C \in Classes}{\operatorname{argmax}} \frac{P(C)P(\vec{F}|C)}{P(\vec{F})}$$

Note that we compare the probability of a feature vector through all the classes. Thus the denominator, our feature vector, does not change between classes. Because the denominator behaves as a constant, and division by a constant does not change the relative results across classes, we can simplify the equation for our Naïve Bayes classifier as:

$$\hat{C} = \underset{C \in Classes}{\operatorname{argmax}} P(C)P(\vec{F}|C)$$

A critical assumption made in the use of Naïve Bayes classifiers is that each feature in the feature vector is independent of every other feature. This assumption means that:

$$P(\vec{F}|C) = \prod_{f_k \in \vec{F}} P(f_k|C)$$

and our final equation for the Naïve Bayes classifier becomes:

$$\hat{C} = \underset{C \in Classes}{\operatorname{argmax}} P(C) \prod_{k=1}^{n} P(f_k|C)$$

Note that the first term in the equation is our class prior as discussed above.

One limitation of digital computers arises here. Note that because we are potentially multiplying many probabilities, and probabilities are less than or equal to one, we may rapidly generate a number that is too small for a computer to represent. Hence it is common to map these probabilities via logarithms and, exploiting the properties of logarithms, we add these log-probabilities instead of multiplying the actual probabilities. Our equation becomes:

$$\hat{C} = \operatorname*{argmax}_{C \in Classes} \log P(C) + \sum_{k=1}^{n} \log P(f_k|C)$$

## 2.3.3 Smoothing

One issue with applying naïve Bayes as above is that we must address is the probability of encountering features not seen during training (or "unseen" events). If we simply try to assign these new features no value (or 0), our product rule would produce zero for an entire case when encountering an unseen event. Similarly, since the logarithm of a zero value is undefined, our summation including the log of zero is undefined.

In order to account for the possibility that we will encounter events unseen in training, we implement techniques that assign some minute probability to these features. This process is called "smoothing." Because we are dealing with probabilities and they must sum to 1, the idea in smoothing techniques is to take a small amount of probability mass from the features we have seen and give it to the features we have not seen [14].

## Add-One Smoothing (Also Known as "Laplace Smoothing")

This method introduces some variability in the science of our data. Add-One smoothing, as the name implies, adds one to every count. The features we have seen are treated as if they have been seen one additional time and unseen features (that had zero counts in training) are given a value as if we had seen each one time. Typically, we define Add-One Smoothing in terms of:

T: the number of unique types we have observed

N: the total number of tokens we have observed

V: the size of the vocabulary

Z: the number of types we have not seen (Z = V - T)

Because we added one to every feature, our total count must now be N+V to make room in the total probability for all our features. We denote the smoothed probability as  $P^*$ . Our smooth probability of feature  $f_i$  now becomes  $P_i^* = \frac{count(f_i)}{N+V}$  and we assign all unseen features the probability  $\frac{1}{N+V}$  [14].

### Witten-Bell Smoothing

This type of smoothing uses a frequentist approach in an attempt to capture an estimate of the probability of seeing a feature for the first time. Using the same notation as above, the sum of the probabilities of seeing features for the first time is assigned as  $\frac{T}{N+T}$ . As above, Z is all the vocabulary words we have not seen (and thus have no probability data for.) Then each

unseen word will be assigned  $(\frac{1}{Z})^{th}$  the total value or  $\frac{T}{Z(N+T)}$ . Using Witten-Bell smoothing, for features we have seen we use  $\frac{count(f_i)}{N+T}$  for the probability of feature  $f_i$  [15]. Succinctly:

$$P^*(f_i) = \begin{cases} \frac{T}{Z(N+T)} & \text{if } count(f_i) = 0\\ \frac{count(f_i)}{N+T} & \text{if } count(f_i) > 0 \end{cases}$$

## 2.3.4 Hidden Markov Models

Hidden Markov models (HMMs) are frequently used in part-of-speech tagging with the hidden states emitting the respective POS. We are not interested in POS tagging. Instead we implemented HMMs in order to determine if they could provide useful information in dialog act classification. HMMs are discussed in [9, 10, 14, 16].

```
Baum-Welch Algorithm (input training sequence O, output HMM H=(\pi,A,B,N,M)) Goal: Iteratively estimate model parameters A,B,\pi Define: p_t(i,j), 1 \leq t \leq T, 1 \leq i, j \leq N where T is length of O,N is number of hidden states Step 1: Let initial model be \mu_0 = (A_0,B_0,\pi_0) Step 2: p_t(i,j) = \frac{P(O_t=i,O_{t+1}=j,O|\mu)}{P(O|\mu)} = \frac{\alpha_i(t)a_{ij}b_{ijo_t}\beta_j(t+1)}{\sum_{m=1}^N \alpha_m(t)\beta_m(t)} Define: \gamma_t(i) = \sum_{j=1}^N P_t(i,j) \text{ the probability of being in state } i \text{ at time } t \text{ given } O. \sum_{t=1}^T \gamma_i(t) = \text{expected number of transitions from state } i \text{ in } O \hat{\pi}_i = \gamma_i(1) = \text{expected number of transitions from state } i \text{ to state } j \text{expected number of transitions from } i \hat{b}_{ijk} = \frac{\text{expected number of transitions from } i \text{ to } j \text{ with observed token } k}{\text{expected number of transitions from } i \text{ to } j} If \log P(O|\hat{\mu}) - \log P(O|\mu_0) < \epsilon return \hat{\mu} else \mu_0 = \hat{\mu} and goto Step 2.
```

Figure 2.1: Baum-Welch Algorithm. After [16].

An HMM H consists of a five-tuple  $H = \{\Pi, A, B, N, M\}$  where  $\Pi$  represents the probabilities for each initial state, A is the set of state transition probabilities, B is the set of emission probabilities, N is a set of hidden states, and M is the symbol alphabet.

H is trained by use of a sequence of tokens derived from all tokens observed during training.

The parameters of the language model  $\mu = \{\Pi, A, B\}$  are learned through a form of expectation maximization. In this methodology, we begin by estimating the parameters (the expectation step) and then use the maximization step to determine the likelihood of the training sequence given the estimated parameters. We then determine relative importance of the proposed model's transition and emission probabilities and use this information to produce new parameters for the model. By iteratively improving  $\mu$ 's parameters, we improve the overall performance of the HMM until the magnitude of the changes falls below a defined threshold. For HMMs, this iterative algorithm is called the Baum-Welch or Forward-Backward algorithm (see Figure 2.1) [16].

Though subjected to settling at local maxima, the expectation maximization approach has proven effective for use in the training of Hidden Markov Models. When the language model has been determined through training, the HMM uses the calculated  $\mu$  and processes observation sequences (O where  $O = (o_1, o_2, ..., o_n)$  and  $o_k \in M$ ) derived from test cases (for this work these consist of individual chat posts.) The Viterbi algorithm, a form of dynamic programming, is then used to determine the probability of observing a respective test case given H.

# 2.3.5 Support Vector Machines

Support Vector Machines (SVMs) are discussed in [9, 10, 14]. In general, SVMs produce a discriminant classifier that attempts to find boundaries that separate two distinct classes of data. Because we may have an infinite number of boundaries that satisfy this requirement (see Figure 2.3), SVM further refines the solution to the boundary that maximizes the distance between the data points closest to the proposed boundary (see Figure 2.4). Hence, SVM is also referred to as a maximum margin classifier. Note that the data points closest to the boundary, those whose margin we are maximizing, are called the support vectors. The boundaries produced by SVM classifiers are of dimension n-1 where n corresponds to the dimensions of the data points themselves. Therefore, for two dimensional space, SVM attempts to find a line separating the class examples from the non-class examples, and for three dimensional data, the algorithm attempts to find a boundary in the form of a plane. Above three dimensions, SVM boundaries are called hyperplanes.

Viterbi Algorithm (O, HMM H = ( $\Pi$ , A, B, N, M)) Goal: Find the most probably state sequence  $\hat{X} = \operatorname{argmax}_X P(X|O,\mu)$  it is sufficient to maximize  $\operatorname{argmax}_X P(X,O|\mu)$  define:

$$\delta_j(t) = \max_{X_1...X_{t-1}} P(X_1, ..., X_{t-1}, o_1, ..., o_{t-1}, X_t = j | \mu)$$

Step 1: Initialization

$$\delta_i(1) = \pi_i, 1 \le j \le N$$

Step 2: Induction

$$\delta_j(s+1) = \max_{1 \le i \le N} \delta_i(t) a_{ij} b_{ijo_t}, 1 \le j \le N$$

Store backtrace

$$\psi_j(t+1) = \operatorname*{argmax}_{1 \le i \le N} \delta_i(t) a_{ij} b_{ijot}, 1 \le j \le N$$

Step 3: Termination and path readout (by backtracking). The most likely state sequence is worked out from the right backwards:

$$\hat{X}_{T+1} = \underset{1 \le i \le N}{\operatorname{argmax}} \delta_i(T+1)$$

$$\hat{X}_t = \psi_{\hat{X}_{t+1}}(t+1)$$

$$P(\hat{X}) = \underset{1 \le i \le N}{\max} \delta_i(T+1)$$

Figure 2.2: Viterbi Algorithm. After [16].

If the data is not linearly separable, support vector machines may apply a kernel function to the data points. This results in added dimensionality of the resulting data and may provide linearly separable points in the new feature space [18].

### 2.3.6 Decision Trees

Classification using decision trees is discussed in [9, 14, 19, 20, 21]. This classification method uses successive questions about dataset attributes to reduce the possible selections for our classifier until a determination is achieved. At the root of the tree, all classes are considered possible and a question is asked regarding the data features. For a binary decision tree, this is a yes or no question whose answer leads to another node with a subsequent question. Ideally, when a node's question determines the class of a test case, the answer leads to a leaf node that returns

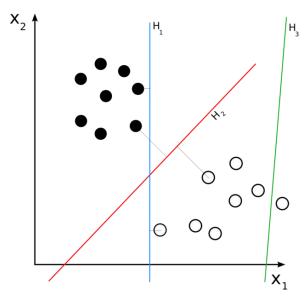


Figure 2.3: Example Separators. From [17].

#### the classifier's result.

Rather than constructing a decision tree by randomly selecting questions, Quinlan advocates a method of inductively creating decision trees based on using a measure of maximum information gain [22]. Called the ID3 algorithm, it starts at the root of the tree and develops from the top down recursively. If, at a node, the data belongs to only one subset, the tree classifies test data leading to this node as belonging to that subset. If questions are available to divide the subset further, the question providing the highest information gain is selected and the new subsets become nodes on the next lower level. If there are no questions that further segregate the data, the node becomes a leaf and classifies and examples that lead to this leaf as belonging to the most likely class included in the remaining subsets.

Decision trees are hampered by several issues including overfitting and "...handling continuous attributes, choosing an appropriate attribute selection measure, handling training data with missing attribute values, handling attributes with differing costs, and improving computational efficiency" [20]. To address some these issues, Quinlan modified ID3 by using reduced-error pruning. This method considers each node of the tree and if removal of the node does not reduce the performance of the tree when validation data is tested, it is removed and a leaf node that returns the most likely of the classes remaining is installed. Note that this requires the training data to be divided into a training set and a validation set which is not desirable for small training sets.

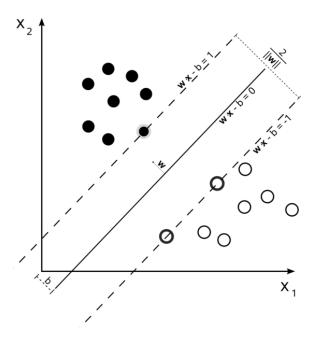


Figure 2.4: Maximum Margin Hyperplane. From [17].

In 1993, Quinlan introduced the C4.5 algorithm as an extension of ID3. This change functions as in ID3 but refines the resulting tree by creating a rule for each path in the tree, generalizing each rule if possible then sorting the rules by comparing their estimated accuracy. In his estimate of rule accuracy in C4.5, Quinlan uses the training set to determine each rule's accuracy and applies a penalty to better estimate test performance [20]. The test data is then classified using these rules.

# 2.3.7 Maximum Entropy

Application of Maximum Entropy techniques in NLP are discussed in [23, 24]. These techniques are based on making no arbitrary assumptions about the data to be classified. Given no information about a data set with N classes, in order to avoid making undue assumptions, we would require that the probability of an element x belonging to class  $c_j$  is uniformly distributed across all classes, thus  $p(c_j|x) = \frac{1}{n}$  where  $1 \le j \le N$ . If we discover some piece of evidence during training that would indicate that x is more likely to belong to a subset of one classes, then the probabilities of the classes belonging to this subset are promoted [23]. The classes not in this subset are subsequently reduced in order to maintain total probability equal to one. These models continue to be updated throughout training.

To develop a model, these techniques are used to develop "features" which consist of binary

functions based on observations made during training. These functions, with respect to the class distributions discovered during training, are then used in classification. These statistics, when determined important to the classification task, are then used as constraints to which prospective models must adhere. Those models that violate a constraint are discarded from consideration [23].

Consider the NPS chap corpus domain where we have 15 distinct dialog act classes. With no other information, by the principle of maximum entropy, we would assume a uniform distribution of assign the probability of a particular post belonging to our categories as  $p(c) = \frac{1}{15} = 0.067$ . If, during training, we discover that half the time we observe the word "how" in a chat post the post belongs to the whQuestion or ynQuestion classes, then we would update our model. Because we have no other information between the two Question classes, we evenly distribute the update across them giving

$$p(\text{whQuestion}|\text{``how''}) = p(\text{ynQuestion}|\text{``how''}) = 0.25$$

and

$$p(\text{all other classes}|\text{"how"}) = 0.0385$$

By repeatedly comparing a test case's data with multiple constraints, the classifier predicts to which class the test case belongs.

## 2.3.8 Evaluation Criteria

#### Accuracy

Accuracy is a frequently used metric for comparing the performance of classifiers. Accuracy reports the percentage of items classified correctly. The formula for accuracy is:

$$Accuracy = \frac{TruePositives + TrueNegatives}{TruePositives + FalsePositives + TrueNegatives + FalseNegatives}$$
(2.2)

Where:

*True Positives*: the number of posts in the class of interest that were correctly classified *False Positives*: the number of posts incorrectly called members of the class of interest *True Negatives*: the number of posts correctly classified as non-class

False Negatives: the number of posts that were members of the class of interest but that were incorrectly classified as non-class

For our work, *Accuracy* is the number of chat posts our classifier correctly labeled divided by the total number of chat posts in the test set

#### **Precision, Recall and F-score**

Precision is the proportion of the items a classifier labeled as class  $c_i$  correctly versus the total number of it classified as  $c_i$ . In essence, precision is a measure of how reliable the output of a classification scheme is. The precision formula is:

$$Precision = \frac{TruePositives}{TruePositives + FalsePositives}$$

Consider, however, that if our classifier selects one correct example out of many (TruePositives = 1), but selects no others (FalsePositives = 0), we would achieve a precision of 1.00. Clearly, precision alone is an insufficient measure of performance. Recall is the proportion of items a classifier labeled as class  $c_i$  versus the total number of examples of  $c_i$  in the testing set. The formula for recall is:

$$Recall \ = \frac{TruePositives}{TruePositives \ + \ FalseNegatives}$$

Similar to precision, *Recall* has a shortcoming in that if we select everything, we can achieve a recall of 1.00 because we have classified no false negatives. Because algorithmic approaches may be biased in favor of either precision or recall, and these biases frequently sacrifice one for the other, we provide an F-score for our results [16]. The F-score is a harmonic mean and is given by the formula:

$$F\text{-}score = \frac{2}{\frac{1}{Precision} + \frac{1}{Recall}}.$$

#### **Confusion Matrices**

While Accuracy, Precision, Recall and F-score provide a high-level indication of a classifiers performance, they provide no utility in determining where the classifier erred. A confusion matrix can be useful in error analysis by displaying truth information in columns and classifier results in rows. Cell (x,y) then represents the number of items in class y that our classifier labeled as x [10]. A confusion matrix is then:

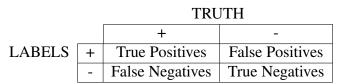


Table 2.4: Example Confusion Matrix

Note that the cell entries in Table 2.4 directly correspond to the terms used in *Accuracy*, *Precision* and *Recall* above.

Consider an example binary classification task performed on a set consisting of 100 test cases with 10 belonging to class  $c_1$  and 90 belonging to class  $c_2$ . If our classifier correctly labels 5 cases that belong to  $c_1$  and mislabeled no cases belonging to  $c_2$ , our confusion matrix would be:

		TR	UTH
		$c_1$	$c_2$
LABELS	$c_1$	5	0
	$c_2$	5	90

Table 2.5: Confusion Matrix with Sample Data

We have 5 correctly labeled examples as shown in cell  $(c_1, c_1)$ . In other terms, we have *True Positives* = 5. Cell  $(c_1, c_2)$  shows that we did not mislabel any examples of  $c_2$  as belonging to class  $c_1$  (*False Positives* = 0) and cell  $(c_2, c_1)$  indicates that we have mislabeled 5  $c_1$  cases as not belonging to  $c_1$ , or *False Negatives* = 5. Finally, cell  $(c_2, c_2)$  shows that we correctly identified all  $c_2$  cases (*True Negatives* = 90).

From our formulas above:

$$Precision = \frac{5}{5} = 1.00$$

$$Recall = \frac{5}{10} = 0.50$$

$$F\text{-score} = \frac{2}{\frac{1}{1.0} + \frac{1}{0.5}} = 0.667$$

Additionally, we can see a shortcoming of using Accuracy as a measure of performance when there are many non-examples in a test set. In this case,  $Accuracy = \frac{5+90}{100} = 0.95$ . While a measure of 95% seems satisfactory, it obfuscates the fact that our classifier missed half of the example cases we may have been interested in.

One's choice in evaluation criteria is clearly important in determining the true performance of any classifier.

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# CHAPTER 3: TECHNICAL APPROACH

#### 3.1 Introduction

Part of speech tagging is useful in dialog act tagging as shown in Forsyth [6] and Wu et al. [8]. Unfortunately, at the current state-of-the-art, accurate grammatical tagging requires hand-annotation in the chat domain. We hypothesize that by using an MLE part of speech tags, similar dialog act tagging performance is achievable with significantly less effort vis-a-vis hand POS tagging.

In this chapter, we describe the data sources and experimental design.

#### 3.2 Sources of Data

We elected to generate our MLE part of speech tags from a domain outside of chat in order to test the viability of our cross-genre approach.

## 3.2.1 Wall Street Journal and Brown Corpora

In order to produce a cross-genre, maximum likelihood estimation (MLE) part of speech tagger we counted the number of words and their corresponding parts of speech in the *Wall Street Journal* and Brown corpora. For the MLE tags we applied, for each word in the CPOS dictionary, the part of speech that had the highest count in the combined corpora. We refer to these tags as "cheap" part-of-speech (or "CPO") tags. Because the tag set used in the Brown corpora was larger, we mapped some of the Brown tags to their Wall Street Journal equivalents. In addition, all words in the CPOS dictionary were converted to lower case.

To reduce the size of the CPOS dictionary, tokens that consisted of cardinal numbers (POS tagged as "CD") were removed and later recognized by regular expressions. Our methodology resulted in a dictionary with 74,034 entries. Note that we did not use any chat corpus data in creating this dictionary.

# 3.2.2 NPS Chat Corpus

The chat data originally collected by Lin in 2006 is described in Lin [5]. She collected over 477,000 individual posts by 3,290 unique authors. A portion of this corpus was anonymized by

Forsyth who masked personally identifiable information such as names and ages. Users' chat aliases were replaced with templates assigned based on chat room (including age group), date and order that each user joined the respective chat room.

Forsyth part-of-speech and dialog act tagged the anonymized portion of the Lin corpus consisting of 10,567 chat posts [6]. This subset is known as the NPS chat corpus. We considered his tags, both POS and dialog act, as "ground truth" and compared the performance of our dialog act classifier based on his parts of speech and our cheap parts of speech. Table 3.1 shows the

	<b>Post Count</b>	Percent of Total
Statement	3185	30.14%
System	2632	24.91%
Greet	1363	12.90%
Emotion	1106	10.47%
ynQuestion	550	5.20%
whQuestion	533	5.04%
Accept	233	2.20%
Bye	195	1.85%
Emphasis	190	1.80%
Continuer	168	1.59%
Reject	159	1.50%
yAnswer	108	1.02%
nAnswer	72	0.68%
Clarify	38	0.36%
Other	35	0.33%

Table 3.1: Number of Posts in NPS Chat Corpus by Dialog Act

breakdown of posts by dialog act class in the entire NPS chat corpus. Note the disparities in the sizes of the different dialog act classes as shown in column two. Naïve Bayes classifiers use class priors (P(C)). These are displayed in column three. The large differences in class priors will significantly skew our classifier results toward the Statement and System dialog act classes.

#### 3.2.3 Division of Data

In order to directly compare our classifier results with Forsyth's, we considered each chat post independently and held-out ten percent of the posts for testing. This test set was not used in training. Actual dialog act tags were maintained in the test set data in order to determine classifier performance.

We tested over 50 such divisions. This resulted in an average of 9,513.34 posts (90.02% of total) for training and 1,053.66 (9.98%) posts for testing.

#### 3.3 Classification Tasks

Our task was to determine the effectiveness of cheap parts of speech in determining dialog act class by use of a naïve Bayes classifier. We performed a multi-class classification task over the 15 dialog act classes. Our results contain a comparison of performance between computationally expensive techniques with human verification to determine accurate POS tags versus "cheap" POS tags.

#### 3.4 Feature Selection

Rather than repeating Forsyth's approach of using temporal and specific lexical features of the data (see Table 2.3), we elected to use a more traditional, token-based approach for our naïve Bayes classifier. We used unigrams, bigrams and trigrams from POS tags only as well as bigrams made up of pairs of word/POS pairs.

#### 3.4.1 Features

Naïve Bayes Classifier Features:

- 1. Actual Part of Speech unigrams, bigrams, trigrams (for comparison)
- 2. Cheap Part of Speech unigrams, bigrams, trigrams
- 3. Word, Actual POS pair bigrams (for comparison)
- 4. Word, Cheap POS pair bigrams
- 5. Word Bigrams

Figures 3.1, 3.2 and 3.3 show the total counts of features in all 10,567 posts in the NPS chat corpus. We observe that the number of training features for each dialog act class is skewed toward Statement and System classes. Though there are more posts tagged as Emotion than either of the Question classes, the count of features in the Emotion dialog act class is lower. We can infer that posts in the Emotion class are generally shorter than Question posts.

# 3.5 Experiment Setup

For our experiments, we read in all 10,567 posts in the NPS chat corpus. Training posts were segregated into two data sets, one of which retained actual POS tags and one that replaced these

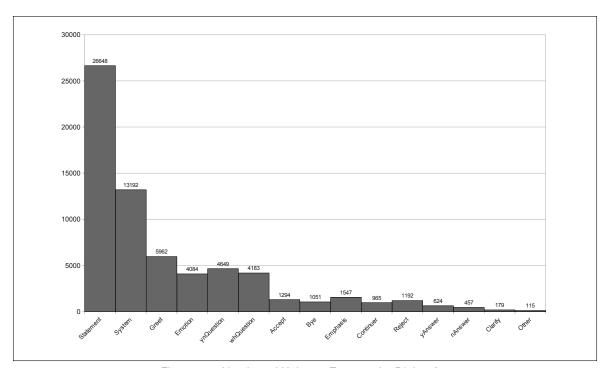


Figure 3.1: Number of Unigram Features by Dialog Act

with CPOS tags. These two structures produced the feature vectors used for testing. Test posts were similarly separated into two data structures one retaining the actual POS tags, the other utilizing CPOS tags. Feature vectors were calculated for each individual post in the test data structures.

We chose to use naïve Bayes classifiers with our different features due to their speed.

Each POS tag was associated with an integer that functioned as an index into arrays that maintained the feature counts.

For each test post, we computed:

$$\hat{C} = \underset{C_i \in Classes}{\operatorname{argmax}} = \log P(C_i) \sum_{j} \log P^*(f_j|C_i)$$

Noting the disparity in between the class populations, we expected that the class prior probabilities would affect the performance of a naïve Bayes classifier. In order to help overcome this

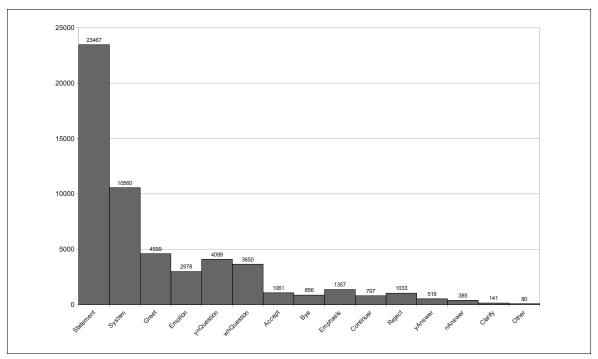


Figure 3.2: Number of Bigram Features by Dialog Act

disparity, we also computed:

$$\hat{C} = \underset{C_i \in Classes}{\operatorname{argmax}} \log P(C_i) \sum_{j} \log P^*(wpp_j|C_i) + \sum_{k} \log P^*(pb_k|C_i)$$
(3.1)

where  $wpp_j$  is the word/POS pair bigram j and pb is the POS bigram k.

Overall Accuracy was computed as  $\frac{True\ Positives}{Number\ of\ Test\ Posts}$  for comparison with Forsyth and because of the large number of  $True\ Negatives$  skews the accuracy (as shown in equation 2.2) calculations toward 1.00 so as to make them useless.

We noted that Witten-Bell smoothing performed better than LaPlace for our experiments. We provide results for Witten-Bell smoothed unigrams, bigrams and trigrams and LaPlace smoothing of bigrams for comparison.

# 3.5.1 Data Preprocessing

In processing both the actual and cheap data structures, we converted all word tokens to lower case to match our CPOS dictionary. The parts of speech applied by Forsyth were not changed in the actual data structure. In the cheap data structure, we replaced the actual parts of speech with the cheap parts of speech found in the CPOS dictionary. For each post, start-of-post and

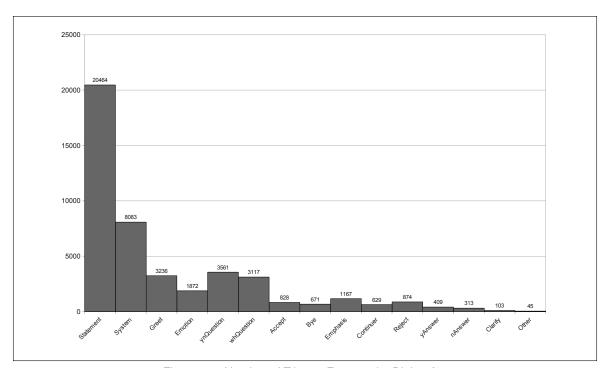


Figure 3.3: Number of Trigram Features by Dialog Act

end-of-post markers were added to preserve context in bigram and trigram classification tasks.

Because none of the emoticons were contained in either the WSJ or Brown corpora, these were initially assigned the CPOS tag of "UNK" or unknown. In addition to providing results with no effort to recognize emoticons, we augmented the CPOS dictionary to recognize emoticons in order to compare performance with the added context provided by these chat features.

Emoticons were assigned the interdiction ("UH") POS by Forsyth, we compared performance of our classifier with "UH" and other POS tags. In addition to marking emoticons with "UNK" (not found in the CPOS dictionary) and "UH," we followed Forsyth's recommendation and tested our classifier marking these features with the unique POS tag "EMO" [6]. We further divided the emoticons into two categories, those found in Appendix A and those composed of phrase abbreviations such as "lol." We provide results of our experiments using all emoticon tagging schemes in Chapter 4.

For our experiments, because we were not interested in identifying individuals, we further masked all user names in training and test posts with a unique word. Because this word was not found in the CPOS dictionary, we automatically assigned the POS tag "NNP" for accurate performance comparison.

Though our effort was not focused on POS tagging accuracy, we noted that our CPOS tagging methodology produced an accuracy ranging from 68.16% to 71.36% depending on our selection of emoticon POS marks. Figure 3.4 provides an example of the difference introduced by the

```
Post with Actual POS tags: with/IN an/DT answer/NN like/IN that/DT .../: nope/UH ..../: lol/UH
Post with Cheap POS tags: with/IN an/DT answer/NN like/IN that/IN .../: nope/UH ..../UNK lol/EMO
```

Figure 3.4: Example Post Displaying Differences in POS Markings

CPOS methodology. Start- and end-of-post markings have been removed for clarity. Note that the actual POS tagged post includes the POS tags as applied by Forsyth. The same post, with CPOS tags applied, shows that "with," "an," "answer," and "like" are most often used in the Wall Street Journal and Brown corpora with the same tags as Forsyth applied. "That," however, is most frequently tagged as "IN" (Preposition/subordinating conjunction) in the WSJ and Brown corpora and is marked as such by our CPOS dictionary. In fact, "that" is POS tagged as "IN" 6,682 times and as "DT" 4,373 times in WSJ and Brown. The string "..." is recognized by the CPOS dictionary, however when it includes extra characters, it is not and is given the "UNK" tag as can be seen above. Note also that the popular emoticon "lol" (laugh out loud) is marked with our "EMO" tag as specified in the settings used in this particular experiment.

```
For illustration, actual POS bigrams for this sample post would produce: (IN,DT), (DT,NN), (NN,IN), (IN,DT), (DT,:), (:,UH), (UH,:), (:,UH). Using cheap POS with no emoticon recognition would result in: (IN,DT), (DT,NN), (NN,IN), (IN,IN), (IN,:), (:,UH), (UH,UNK), (UNK,UNK). Augmenting our CPOS dictionary to tag emoticons with our "EMO" tag gives: (IN,DT), (DT,NN), (NN,IN), (IN,IN), (IN,:), (:,UH), (UH,UNK), (UNK,EMO).
```

#### 3.5.2 Random Trials

We conducted 50 random trials in which 10% of the chat posts were held-out for testing. Confusion matrices for selected experiment runs are included in Appendix C.

Having completed the discussion of our technical approach, we present our results in the next chapter.

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# CHAPTER 4: RESULTS AND ANALYSIS

### 4.1 Introduction

In this chapter, we present the results of our experiments. Comparison between the performance of the naïve Bayes classifier with various settings and feature selections are provided. For additional comparison, consider that Forsyth achieved a top dialog act tagging accuracy of 83.2% using a time-consuming process that included 300 iterations by a neural network incorporating 24 features. These results were achieved after human verified part of speech tags were applied. Due to limited time available for this work, we could not recreate Forsyth's experiments over our training/testing splits. We noted that each of our experiment runs completed in an average of 27.5 seconds on a desktop machine equipped with an Intel Core i7 and 8 gigabytes of ram. Note that this includes loading all dictionary and chat data, training and testing on both actual POS tagged posts and cheap POS tagged posts.

#### 4.2 Results

For all experiments, we considered the human-verified dialog act tags applied by Forsyth to be ground truth. The results provided in this chapter refer to the performance of the classifier using these tags as "actual" results. These are provided for comparison with the four emoticon tagging schemes below. Note that the actual POS results do not change between experiment sets. In all confusion matrices and summaries, the results derived when using actual POS are provided with the results of cheap POS application for easy reference.

Our results include performance metrics from naïve Bayes classifiers using part of speech unigrams, bigrams, trigrams, word bigrams, and word/POS pair bigrams, all using Witten-Bell smoothing. We also provide LaPlace smoothed results for POS bigrams for comparison to Witten-Bell for these experiments.

We considered our results separately according to the tagging scheme applied to emoticons. Appendix B provides some insight into how our tags grouped features differently. Essentially, we are binning words by their maximum likelihood estimation parts of speech.

No other changes were made to the algorithm between these sets of results. We initially made

no effort to recognize emoticon features noting that none appeared in the cheap POS dictionary. In our first set of 50 experiments, these were automatically assigned the "UNK" part of speech tag.

#### 4.2.1 Emoticons Not Recognized

Making no effort to recognize emoticons results in our cheap POS tagging achieving an accuracy of 68.16%. Essentially, these features are counted with all other unrecognized words, a set that includes misspelled words, unusual use of punctuation (e.g. "...."), etc.

Run Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Training Posts	9581	9521	9526	9537	9477	9516	9468	9493	9517	9511	9525	9558	9501	9477	9562	9519	9512	947
Test Posts	986	1046	1041	1030	1090	1051	1099	1074	1050	1056	1042	1009	1066	1090	1005	1048	1055	109
MLE performance	0.307	0.285	0.296	0.312	0.312	0.310	0.306	0.304	0.307	0.309	0.316	0.295	0.298	0.298	0.299	0.293	0.282	0.28
Actual POS Unigrams	0.662	0.672	0.663	0.678	0.672	0.684	0.693	0.694	0.696	0.670	0.677	0.681	0.672	0.694	0.689	0.677	0.681	0.68
Cheap POS Unigrams	0.657	0.657	0.628	0.652	0.661	0.656	0.669	0.673	0.652	0.667	0.649	0.654	0.646	0.641	0.662	0.656	0.651	0.65
LaPlace Actual POS 2-grams	0.717	0.721	0.720	0.729	0.720	0.736	0.746	0.742	0.750	0.730	0.727	0.736	0.733	0.741	0.732	0.736	0.735	0.74
LaPlace Cheap POS 2-grams	0.723	0.725	0.709	0.714	0.725	0.731	0.733	0.734	0.724	0.727	0.718	0.714	0.705	0.720	0.721	0.720	0.722	0.72
Actual POS Bigrams	0.729	0.723	0.729	0.742	0.726	0.733	0.744	0.754	0.747	0.741	0.731	0.745	0.727	0.734	0.738	0.736		0.74
Cheap POS Bigrams	0.729	0.734	0.719	0.724	0.734	0.740	0.748	0.746	0.740	0.743	0.725	0.719	0.720	0.729	0.731	0.730	0.727	0.72
Word/Actual-POS pair 2-grams + POS 2-grams	0.829	0.820	0.822	0.826	0.854	0.839	0.854	0.846	0.840	0.838	0.850	0.832	0.841	0.850	0.836	0.824	-	
Word/Cheap-POS pair 2-grams + POS 2-grams	0.834	0.822	0.828	0.820	0.845	0.842	0.854	0.834	0.835	0.833	0.839	0.832	0.833	0.842	0.825	0.819	0.827	0.82
Actual POS Trigrams	0.809	0.822	0.810	0.820	0.828	0.842	0.826	0.820	0.823	0.823	0.837	0.813	0.821	0.836	0.823	0.811	0.819	
Cheap POS Trigrams	0.815	0.805	0.803	0.807	0.828	0.826	0.832	0.807	0.811	0.819	0.829	0.811	0.818	0.823	0.807	0.806	0.811	0.81
word 2-grams	0.813	0.803	0.803	0.822	0.849	0.821	0.850	0.823	0.835	0.813	0.840	0.811	0.832	0.823	0.807	0.819		
word z-grains	0.622	0.623	0.610	0.622	0.049	0.621	0.650	0.623	0.655	0.023	0.640	0.620	0.032	0.037	0.621	0.619	0.624	0.62
Run Number:	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Training Posts	9554	9527	9542	9518	9492	9547	9523	9534	9491	9546	9553	9497	9496	9506	9480	9563	9498	945
Test Posts	1013	1040	1025	1049	1075	1020	1044	1033	1076	1021	1014	1070	1071	1061	1087	1004	1069	110
MLE performance	0.316	0.303	0.286	0.299	0.311	0.298	0.291	0.300	0.299	0.299	0.296	0.297	0.288	0.293	0.315	0.282	0.275	
Actual POS Unigrams	0.677	0.680	0.685	0.684	0.687	0.690	0.671	0.684	0.676	0.679	0.686	0.676	0.673	0.647	0.695	0.671	0.675	
Cheap POS Unigrams	0.640	0.651	0.654	0.663	0.649	0.679	0.664	0.661	0.648	0.657	0.665	0.664	0.653	0.627	0.669	0.643	0.659	
LaPlace Actual POS 2-grams	0.735	0.721	0.738	0.735	0.730	0.745	0.725	0.733	0.724	0.728	0.732	0.727	0.725	0.715	0.739	0.735		
LaPlace Cheap POS 2-grams	0.710	0.713	0.722	0.720	0.716	0.742	0.723	0.732	0.714	0.718	0.732	0.727	0.713	0.704	0.733	0.713	0.724	0.71
Actual POS Bigrams	0.736	0.729	0.722	0.741	0.725	0.750	0.731	0.724	0.741	0.738	0.735	0.739	0.727	0.730	0.741	0.734	0.728	
Cheap POS Bigrams	0.730	0.725	0.734	0.741	0.723	0.749	0.731	0.724	0.723	0.738	0.733	0.745	0.721	0.736	0.753	0.734	0.720	0.73
Word/Actual-POS pair 2-grams + POS 2-grams	0.728	0.723	0.720	0.741	0.719	0.749	0.720	0.733	0.723	0.728	0.732	0.745	0.721	0.710	0.733	0.723	0.737	0.71
	0.031			0.830	0.832	0.851	0.832	0.834	0.837	0.831	0.852	0.823	0.813	0.830	0.835	0.841	0.845	
	0.010			0.030		0.031			0.819	0.820	0.831	0.826	0.796	0.807	0.834		0.816	
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819	0.829	0.837	0.024		0.045					0.031	U.OZD	0.790					0.03
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams	0.819	0.825	0.825	0.824	0.815	0.845	0.812	0.817			0.020					0.824		0.01
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams Cheap POS Trigrams	0.819 0.821	0.825 0.811	0.825 0.819	0.817	0.815 0.812	0.841	0.817	0.820	0.825	0.817	0.830	0.817	0.798	0.816	0.833	0.810	0.819	
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams	0.819	0.825	0.825		0.815						0.830 0.835							
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams Cheap POS Trigrams word 2-grams	0.819 0.821 0.810	0.825 0.811 0.838	0.825 0.819 0.828	0.817 0.831	0.815 0.812 0.816	0.841 0.835	0.817 0.823	0.820 0.826	0.825 0.828	0.817 0.829	0.835	0.817 0.816	0.798 0.810	0.816 0.825	0.833	0.810 0.829	0.819 0.833	0.84
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810	0.825 0.811 0.838	0.825 0.819 0.828	0.817 0.831 <b>40</b>	0.815 0.812 0.816	0.841 0.835	0.817 0.823	0.820 0.826	0.825 0.828 <b>45</b>	0.817 0.829 46	0.835	0.817 0.816	0.798 0.810 <b>49</b>	0.816 0.825 <b>50</b>	0.833	0.810 0.829 <b>Mean</b>	0.819 0.833 <b>Max</b>	0.84 Min
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 <b>37</b> 9513	0.825 0.811 0.838 <b>38</b> 9560	0.825 0.819 0.828 39 9528	0.817 0.831 <b>40</b> 9484	0.815 0.812 0.816 41 9548	0.841 0.835 <b>42</b> 9477	0.817 0.823 <b>43</b> 9436	0.820 0.826 <b>44</b> 9471	0.825 0.828 <b>45</b> 9495	0.817 0.829 <b>46</b> 9577	0.835 <b>47</b> 9511	0.817 0.816 <b>48</b> 9445	0.798 0.810 <b>49</b> 9485	0.816 0.825 <b>50</b> 9538	0.833	0.810 0.829 <b>Mean</b> 9513.3	0.819 0.833 <b>Max</b> 9581	0.84 Min 943
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 <b>37</b> 9513 1054	0.825 0.811 0.838 38 9560 1007	0.825 0.819 0.828 39 9528 1039	0.817 0.831 <b>40</b> 9484 1083	0.815 0.812 0.816 <b>41</b> 9548 1019	0.841 0.835 <b>42</b> 9477 1090	0.817 0.823 <b>43</b> 9436 1131	0.820 0.826 <b>44</b> 9471 1096	0.825 0.828 <b>45</b> 9495 1072	0.817 0.829 <b>46</b> 9577 990	0.835 47 9511 1056	0.817 0.816 48 9445 1122	0.798 0.810 <b>49</b> 9485 1082	0.816 0.825 <b>50</b> 9538 1029	0.833	0.810 0.829 <b>Mean</b> 9513.3 1053.7	0.819 0.833 <b>Max</b> 9581 1131	0.84 Min 943
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309	0.825 0.811 0.838 38 9560 1007 0.327	0.825 0.819 0.828 39 9528 1039 0.278	0.817 0.831 <b>40</b> 9484 1083 0.302	0.815 0.812 0.816 <b>41</b> 9548 1019 0.295	0.841 0.835 <b>42</b> 9477 1090 0.303	0.817 0.823 <b>43</b> 9436 1131 0.304	0.820 0.826 <b>44</b> 9471 1096 0.302	0.825 0.828 <b>45</b> 9495 1072 0.311	0.817 0.829 <b>46</b> 9577 990 0.287	0.835 <b>47</b> 9511 1056 0.307	0.817 0.816 48 9445 1122 0.295	0.798 0.810 <b>49</b> 9485 1082 0.291	0.816 0.825 <b>50</b> 9538 1029 0.296	0.833	0.810 0.829 <b>Mean</b> 9513.3 1053.7 0.2993	0.819 0.833 <b>Max</b> 9581 1131 0.327	0.84 Min 943 98 0.27
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 <b>37</b> 9513 1054 0.309 0.680	0.825 0.811 0.838 38 9560 1007 0.327 0.684	0.825 0.819 0.828 39 9528 1039 0.278 0.679	0.817 0.831 <b>40</b> 9484 1083 0.302 0.682	0.815 0.812 0.816 <b>41</b> 9548 1019 0.295 0.654	0.841 0.835 <b>42</b> 9477 1090 0.303 0.701	0.817 0.823 43 9436 1131 0.304 0.691	0.820 0.826 <b>44</b> 9471 1096 0.302 0.675	0.825 0.828 <b>45</b> 9495 1072 0.311 0.683	0.817 0.829 46 9577 990 0.287 0.683	0.835 47 9511 1056 0.307 0.676	0.817 0.816 48 9445 1122 0.295 0.688	0.798 0.810 <b>49</b> 9485 1082 0.291 0.658	0.816 0.825 <b>50</b> 9538 1029 0.296 0.684	0.833	0.810 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795	0.819 0.833 <b>Max</b> 9581 1131 0.327 0.701	0.84 Min 943 98 0.27 0.64
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309 0.680 0.646	0.825 0.811 0.838 38 9560 1007 0.327 0.684 0.652	0.825 0.819 0.828 39 9528 1039 0.278 0.679 0.639	0.817 0.831 40 9484 1083 0.302 0.682 0.646	0.815 0.812 0.816 41 9548 1019 0.295 0.654 0.629	0.841 0.835 42 9477 1090 0.303 0.701 0.671	0.817 0.823 43 9436 1131 0.304 0.691 0.655	0.820 0.826 44 9471 1096 0.302 0.675 0.637	0.825 0.828 45 9495 1072 0.311 0.683 0.660	0.817 0.829 46 9577 990 0.287 0.683 0.651	0.835 47 9511 1056 0.307 0.676 0.644	0.817 0.816 48 9445 1122 0.295 0.688 0.651	0.798 0.810 49 9485 1082 0.291 0.658 0.638	0.816 0.825 <b>50</b> 9538 1029 0.296 0.684 0.669	0.833	0.810 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6534	0.819 0.833 Max 9581 1131 0.327 0.701 0.679	0.84 Min 943 98 0.27 0.64 0.62
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309 0.680 0.646 0.733	0.825 0.811 0.838 38 9560 1007 0.327 0.684 0.652 0.737	0.825 0.819 0.828 39 9528 1039 0.278 0.679 0.639 0.726	0.817 0.831 40 9484 1083 0.302 0.682 0.646 0.733	0.815 0.812 0.816 41 9548 1019 0.295 0.654 0.629 0.714	0.841 0.835 42 9477 1090 0.303 0.701 0.671 0.760	0.817 0.823 43 9436 1131 0.304 0.691 0.655 0.730	0.820 0.826 44 9471 1096 0.302 0.675 0.637 0.727	0.825 0.828 45 9495 1072 0.311 0.683 0.660 0.737	0.817 0.829 46 9577 990 0.287 0.683 0.651 0.713	0.835 47 9511 1056 0.307 0.676 0.644 0.737	0.817 0.816 48 9445 1122 0.295 0.688 0.651 0.744	0.798 0.810 49 9485 1082 0.291 0.658 0.638 0.704	0.816 0.825 <b>50</b> 9538 1029 0.296 0.684 0.669 0.733	0.833	0.810 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6534 0.7315	0.819 0.833 <b>Max</b> 9581 1131 0.327 0.701 0.679 0.760	0.84 Min 943 98 0.27 0.64 0.62 0.70
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309 0.680 0.646 0.733 0.701	0.825 0.811 0.838 9560 1007 0.327 0.684 0.652 0.737 0.726	0.825 0.819 0.828 9528 1039 0.278 0.679 0.639 0.726 0.713	0.817 0.831 40 9484 1083 0.302 0.682 0.646 0.733 0.704	0.815 0.812 0.816 41 9548 1019 0.295 0.654 0.629 0.714 0.709	0.841 0.835 42 9477 1090 0.303 0.701 0.671 0.760 0.734	0.817 0.823 43 9436 1131 0.304 0.691 0.655 0.730 0.714	0.820 0.826 44 9471 1096 0.302 0.675 0.637 0.727	0.825 0.828 45 9495 1072 0.311 0.683 0.660 0.737 0.726	0.817 0.829 46 9577 990 0.287 0.683 0.651 0.713 0.697	0.835 47 9511 1056 0.307 0.676 0.644 0.737 0.716	0.817 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.711	0.798 0.810 49 9485 1082 0.291 0.658 0.638 0.704 0.697	0.816 0.825 50 9538 1029 0.296 0.684 0.669 0.733 0.726	0.833	0.810 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6534 0.7315 0.7183	0.819 0.833 <b>Max</b> 9581 1131 0.327 0.701 0.679 0.760 0.742	0.84 Min 943 98 0.27 0.64 0.62 0.70 0.69
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309 0.680 0.646 0.733 0.701 0.741	0.825 0.811 0.838 9560 1007 0.327 0.684 0.652 0.737 0.726 0.749	0.825 0.819 0.828 39 9528 1039 0.278 0.679 0.639 0.726 0.713 0.723	0.817 0.831 40 9484 1083 0.302 0.682 0.646 0.733 0.704	0.815 0.812 0.816 41 9548 1019 0.295 0.654 0.629 0.714 0.709 0.736	0.841 0.835 42 9477 1090 0.303 0.701 0.671 0.760 0.734 0.761	0.817 0.823 9436 1131 0.304 0.691 0.655 0.730 0.714	0.820 0.826 44 9471 1096 0.302 0.675 0.637 0.727 0.702 0.719	0.825 0.828 45 9495 1072 0.311 0.683 0.660 0.737 0.726 0.735	0.817 0.829 46 9577 990 0.287 0.683 0.651 0.713 0.697 0.728	0.835 47 9511 1056 0.307 0.676 0.644 0.737 0.716 0.750	0.817 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.711	0.798 0.810 9485 1082 0.291 0.658 0.638 0.704 0.697 0.712	0.816 0.825 50 9538 1029 0.296 0.684 0.669 0.733 0.726 0.733	0.833	0.810 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6534 0.7315 0.7183 0.7359	0.819 0.833 <b>Max</b> 9581 1131 0.327 0.701 0.679 0.760 0.742 0.761	0.84 Min 943 98 0.27 0.64 0.62 0.70 0.69 0.71
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309 0.680 0.646 0.733 0.701 0.741	0.825 0.811 0.838 9560 1007 0.327 0.684 0.652 0.737 0.726 0.749	0.825 0.819 0.828 39 9528 1039 0.278 0.679 0.639 0.726 0.713 0.723	0.817 0.831 40 9484 1083 0.302 0.682 0.646 0.733 0.704 0.741	0.815 0.812 0.816 41 9548 1019 0.295 0.654 0.629 0.714 0.709 0.736 0.722	0.841 0.835 9477 1090 0.303 0.701 0.671 0.760 0.734 0.761 0.749	0.817 0.823 9436 1131 0.304 0.691 0.655 0.730 0.714 0.744	0.820 0.826 44 9471 1096 0.302 0.675 0.637 0.727 0.702 0.719	0.825 0.828 9495 1072 0.311 0.683 0.660 0.737 0.726 0.735 0.737	0.817 0.829 46 9577 990 0.287 0.683 0.651 0.713 0.697 0.728	0.835 47 9511 1056 0.307 0.676 0.644 0.737 0.716 0.750 0.734	0.817 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.711 0.740 0.719	0.798 0.810 9485 1082 0.291 0.658 0.704 0.697 0.712 0.707	0.816 0.825 50 9538 1029 0.296 0.684 0.669 0.733 0.726 0.733	0.833	0.810 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6534 0.7315 0.7183 0.7359 0.7279	0.819 0.833 <b>Max</b> 9581 1131 0.327 0.701 0.679 0.760 0.742 0.761 0.753	0.84  Min 943 98 0.27 0.64 0.62 0.70 0.69 0.71 0.69
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309 0.680 0.646 0.733 0.701 0.741 0.715 0.832	0.825 0.811 0.838 9560 1007 0.327 0.684 0.652 0.737 0.726 0.749 0.741	0.825 0.819 0.828 39 9528 1039 0.278 0.679 0.726 0.713 0.723 0.719 0.838	0.817 0.831 9484 1083 0.302 0.682 0.646 0.733 0.704 0.741 0.712 0.837	0.815 0.812 0.816 41 9548 1019 0.295 0.654 0.629 0.714 0.709 0.736 0.722 0.799	0.841 0.835 9477 1090 0.303 0.701 0.671 0.760 0.734 0.761 0.749 0.839	0.817 0.823 9436 1131 0.304 0.691 0.655 0.730 0.714 0.744 0.717 <b>0.848</b>	0.820 0.826 9471 1096 0.302 0.675 0.637 0.727 0.702 0.719 0.706 <b>0.829</b>	0.825 0.828 9495 1072 0.311 0.683 0.660 0.737 0.726 0.735 0.737 <b>0.838</b>	0.817 0.829 46 9577 990 0.287 0.683 0.651 0.713 0.697 0.728 0.697	0.835 47 9511 1056 0.307 0.676 0.644 0.737 0.716 0.750 0.734 0.820	0.817 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.711 0.740 0.719 <b>0.834</b>	0.798 0.810 49 9485 1082 0.291 0.658 0.638 0.704 0.697 0.712 0.707 0.821	0.816 0.825 9538 1029 0.296 0.684 0.669 0.733 0.726 0.733 0.716 0.831	0.833	0.810 0.829 9513.3 1053.7 0.2993 0.6795 0.6534 0.7315 0.7183 0.7359 0.7279	0.819 0.833 <b>Max</b> 9581 1131 0.327 0.701 0.679 0.760 0.742 0.761 0.753 <b>0.854</b>	0.84  Min 943 98 0.27 0.64 0.62 0.70 0.69 0.71
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309 0.680 0.733 0.701 0.741 0.715 0.832 0.832	0.825 0.811 0.838 9560 1007 0.327 0.684 0.652 0.737 0.726 0.749 0.741 0.831 0.833	0.825 0.819 0.828 39 9528 1039 0.278 0.679 0.639 0.726 0.713 0.723 0.719 0.838 0.842	0.817 0.831 9484 1083 0.302 0.682 0.646 0.733 0.704 0.741 0.712 0.837 0.830	0.815 0.812 0.816 41 9548 1019 0.295 0.654 0.629 0.714 0.709 0.736 0.722 0.799 0.809	0.841 0.835 42 9477 1090 0.303 0.701 0.671 0.760 0.734 0.761 0.749 0.839 0.834	0.817 0.823 9436 1131 0.304 0.691 0.655 0.730 0.714 0.744 0.717 0.848 0.828	0.820 0.826 44 9471 1096 0.302 0.675 0.637 0.727 0.702 0.719 0.706 0.829 0.829	0.825 0.828 9495 1072 0.311 0.683 0.660 0.737 0.726 0.735 0.737 0.838 0.830	0.817 0.829 46 9577 990 0.287 0.683 0.651 0.713 0.697 0.697 0.829 0.823	0.835 47 9511 1056 0.307 0.676 0.644 0.737 0.716 0.750 0.734 0.820 0.816	0.817 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.711 0.740 0.719 0.834 0.831	0.798 0.810 49 9485 1082 0.291 0.658 0.638 0.704 0.697 0.712 0.707 0.821	0.816 0.825 50 9538 1029 0.296 0.684 0.669 0.733 0.726 0.733 0.716 0.831	0.833	0.810 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6534 0.7315 0.7183 0.7359 0.7279 0.8356 0.8315	0.819 0.833 9581 1131 0.327 0.701 0.679 0.760 0.742 0.761 0.753 0.854	0.84  Min 943 98 0.27 0.64 0.62 0.70 0.69 0.71 0.69 0.79
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309 0.680 0.733 0.701 0.715 0.832 0.807	0.825 0.811 0.838 9560 1007 0.327 0.684 0.652 0.737 0.726 0.749 0.741 0.831 0.833	0.825 0.819 0.828 39 9528 1039 0.278 0.679 0.639 0.726 0.713 0.723 0.719 0.838 0.842	0.817 0.831 40 9484 1083 0.302 0.682 0.646 0.733 0.704 0.741 0.712 0.837 0.830 0.813	0.815 0.812 0.816 41 9548 1019 0.295 0.654 0.629 0.714 0.709 0.736 0.722 0.799 0.809 0.795	0.841 0.835 42 9477 1090 0.303 0.701 0.671 0.760 0.734 0.761 0.749 0.839 0.834 0.826	0.817 0.823 9436 1131 0.304 0.691 0.655 0.730 0.714 0.714 0.717 0.848 0.828	0.820 0.826 44 9471 1096 0.302 0.675 0.637 0.727 0.702 0.719 0.706 0.829 0.813	0.825 0.828 45 9495 1072 0.311 0.683 0.660 0.737 0.726 0.735 0.737 0.838 0.830 0.828	0.817 0.829 46 9577 990 0.287 0.683 0.651 0.713 0.697 0.728 0.697 0.829 0.823	0.835 47 9511 1056 0.307 0.676 0.644 0.737 0.716 0.750 0.734 0.820 0.816 0.808	0.817 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.711 0.740 0.719 0.834 0.831 0.826	0.798 0.810 49 9485 1082 0.291 0.658 0.704 0.697 0.712 0.707 0.821 0.816 0.806	0.816 0.825 50 9538 1029 0.296 0.684 0.669 0.733 0.726 0.733 0.716 0.831 0.824	0.833	0.810 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6534 0.7315 0.7183 0.7359 0.7279 0.8356 0.8315 0.8196	0.819 0.833 9581 1131 0.327 0.701 0.679 0.760 0.742 0.761 0.753 0.854 0.845	0.84  Min 943 98 0.27 0.64 0.62 0.70 0.69 0.71 0.69 0.79 0.80
Word/Cheap-POS pair 2-grams + POS 2-grams	0.819 0.821 0.810 37 9513 1054 0.309 0.680 0.733 0.701 0.741 0.715 0.832 0.832	0.825 0.811 0.838 9560 1007 0.327 0.684 0.652 0.737 0.726 0.749 0.741 0.831 0.833	0.825 0.819 0.828 39 9528 1039 0.278 0.679 0.639 0.726 0.713 0.723 0.719 0.838 0.842	0.817 0.831 9484 1083 0.302 0.682 0.646 0.733 0.704 0.741 0.712 0.837 0.830	0.815 0.812 0.816 41 9548 1019 0.295 0.654 0.629 0.714 0.709 0.736 0.722 0.799 0.809	0.841 0.835 42 9477 1090 0.303 0.701 0.671 0.760 0.734 0.761 0.749 0.839 0.834	0.817 0.823 9436 1131 0.304 0.691 0.655 0.730 0.714 0.744 0.717 0.848 0.828	0.820 0.826 44 9471 1096 0.302 0.675 0.637 0.727 0.702 0.719 0.706 0.829 0.829	0.825 0.828 9495 1072 0.311 0.683 0.660 0.737 0.726 0.735 0.737 0.838 0.830	0.817 0.829 46 9577 990 0.287 0.683 0.651 0.713 0.697 0.697 0.829 0.823	0.835 47 9511 1056 0.307 0.676 0.644 0.737 0.716 0.750 0.734 0.820 0.816	0.817 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.711 0.740 0.719 0.834 0.831	0.798 0.810 49 9485 1082 0.291 0.658 0.638 0.704 0.697 0.712 0.707 0.821	0.816 0.825 50 9538 1029 0.296 0.684 0.669 0.733 0.726 0.733 0.716 0.831	0.833	0.810 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6534 0.7315 0.7183 0.7359 0.7279 0.8356 0.8315	0.819 0.833 9581 1131 0.327 0.701 0.679 0.760 0.742 0.761 0.753 0.854 0.845	0.84  Min 943 98 0.27 0.64 0.62 0.70 0.69 0.71 0.69 0.79 0.78

Figure 4.1: Summary of Results with Emoticons Unrecognized

The emphasized row in figure 4.1 shows that our best results were achieved using equation 3.1. These rows represent using the sum of feature probabilities of word/POS pair bigrams and of POS bigrams in our naïve Bayes classifier. We can see that using actual POS tags we were able to provide better overall accuracy than was achieved by Forsyth. In fact, using cheap POS, which require no preprocessing time or effort, nearly equaled the previous work.

In order to determine if we would achieve better dialog act classification accuracy with different emoticon tags, we attempted three new tagging schemes.

#### **4.2.2** Emoticons Labeled as Interjections

One of the decisions made by Forsyth in developing the NPS chat corpus was that emoticons should be labeled as interjections ("UH"). We used regular expressions to identify both types of emoticons and augmented our cheap POS dictionary to also label them as interjections.

Using this scheme, our MLE part of speech tagger achieved its highest level of accuracy matching the truth POS tags only 71.36% of the time.

| 1  | 2  | 3  | 4  | 5  
   
   | 6   
   
  | 7  | 8  | 9  | 10   | 11  | 12   | 13  | 14  | 15  
  | 16   | 17   | 18   |
|--|--|--|--
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--|--
--|--|--|---|--|---|---
--|--|--|--|
| 9581   | 9521   | 9526   | 9537   | 9477   
   
   | 9516  
   
  | 9468   | 9493   | 9517   | 9511   | 9525  | 9558   | 9501  | 9477  | 9562  
  | 9519   | 9512   | 9473   |
| 986  | 1046   | 1041   | 1030   | 1090   
   
   | 1051  
   
  | 1099   | 1074   | 1050   | 1056   | 1042  | 1009   | 1066  | 1090  | 1005  
  | 1048   | 1055   | 1094   |
| 0.307  | 0.285  | 0.296  | 0.312  | 0.312  
   
   | 0.310   
   
  | 0.306  | 0.304  | 0.307  | 0.309  | 0.316   | 0.295  | 0.298   | 0.298   | 0.299   
  | 0.293  | 0.282  | 0.283  |
| 0.662  | 0.672  | 0.663  | 0.678  | 0.672  
   
   | 0.684   
   
  | 0.693  | 0.694  | 0.696  | 0.670  | 0.677   | 0.681  | 0.672   | 0.694   | 0.689   
  | 0.677  | 0.681  | 0.683  |
| 0.631  | 0.638  | 0.605  | 0.648  | 0.650  
   
   | 0.634   
   
  | 0.660  | 0.661  | 0.645  | 0.643  | 0.628   | 0.644  | 0.630   | 0.649   | 0.646   
  | 0.642  | 0.636  | 0.654  |
| 0.717  | 0.721  | 0.720  | 0.729  | 0.720  
   
   | 0.736   
   
  | 0.746  | 0.742  | 0.750  | 0.730  | 0.727   | 0.736  | 0.733   | 0.741   | 0.732   
  |  |  | 0.740  |
| 0.686  |  | 0.692  |  |  
   
   |   
   
  | 0.716  |  |  |  |   |  |   |   | 0.707   
  |  |  | 0.716  |
|  |  |  |  |  
   
   |   
   
  |  |  |  |  |   |  |   |   |   
  |  |  | 0.744  |
|  |  | -  |  |  
   
   |   
   
  |  |  |  |  |   |  | -   |   |   
  |  |  | 0.718  |
|  |  |  |  | -  
   
   |   
   
  |  |  |  |  |   |  |   |   |   
  |  |  | 0.836  |
|  |  |  | _  | _  
   
   | _   
   
  |  |  |  |  |   |  |   |   |   
  |  |  | 0.822  |
|  |  |  |  |  
   
   |   
   
  |  |  |  |  |   |  |   |   |   
  |  |  | 0.820  |
|  |  |  |  |  
   
   |   
   
  |  |  |  |  |   |  |   |   |   
  |  |  | 0.812  |
|  |  |  |  |  
   
   |   
   
  |  |  |  |  |   |  |   |   |   
  |  |  |  |
|  |  | 1.1110   |  |  
   
   |   
   
  |  | 2.220  |  |  |   |  |   |   |   
  | 2.220  | J  |  |
| 19   | 20   | 21   | 22   | 23   
   
   | 24  
   
  | 25   | 26   | 27   | 28   | 29  | 30   | 31  | 32  | 33  
  | 34   | 35   | 36   |
| 9554   | 9527   | 9542   | 9518   | 9492   
   
   | 9547  
   
  | 9523   | 9534   | 9491   | 9546   | 9553  | 9497   | 9496  | 9506  | 9480  
  | 9563   | 9498   | 9458   |
| 1013   | 1040   | 1025   | 1049   | 1075   
   
   | 1020  
   
  | 1044   | 1033   | 1076   | 1021   | 1014  | 1070   | 1071  | 1061  | 1087  
  | 1004   | 1069   | 1109   |
| 0.316  | 0.303  | 0.286  | 0.299  | 0.311  
   
   | 0.298   
   
  | 0.291  | 0.300  | 0.299  | 0.299  | 0.296   | 0.297  | 0.288   | 0.293   | 0.315   
  | 0.282  | 0.275  | 0.298  |
| 0.677  | 0.680  | 0.685  | 0.684  | 0.687  
   
   | 0.690   
   
  | 0.671  | 0.684  | 0.676  | 0.679  | 0.686   | 0.676  | 0.673   | 0.647   | 0.695   
  | 0.671  | 0.675  | 0.682  |
| 0.635  | 0.644  | 0.642  | 0.651  | 0.647  
   
   | 0.666   
   
  | 0.650  | 0.644  | 0.630  | 0.631  | 0.652   | 0.644  | 0.643   | 0.618   | 0.655   
  | 0.633  | 0.646  | 0.650  |
| 0.735  | 0.721  | 0.738  | 0.735  | 0.730  
   
   | 0.745   
   
  | 0.725  | 0.733  | 0.724  | 0.728  | 0.732   | 0.727  | 0.725   | 0.715   | 0.739   
  | 0.735  | 0.728  | 0.738  |
| 0.711  | 0.704  | 0.709  | 0.701  | 0.709  
   
   | 0.723   
   
  | 0.691  | 0.710  | 0.697  | 0.708  | 0.715   | 0.706  | 0.703   | 0.694   | 0.710   
  | 0.700  | 0.703  | 0.706  |
| 0.736  | 0.729  | 0.734  | 0.741  | 0.725  
   
   | 0.750   
   
  | 0.731  | 0.724  | 0.741  | 0.738  | 0.735   | 0.739  | 0.727   | 0.730   | 0.741   
  | 0.734  | 0.728  | 0.739  |
| 0.723  | 0.715  | 0.703  | 0.715  | 0.709  
   
   | 0.730   
   
  | 0.700  | 0.715  | 0.710  | 0.716  | 0.715   | 0.723  | 0.710   | 0.700   | 0.729   
  | 0.706  | 0.717  | 0.707  |
| 0.831  | 0.847  | 0.837  | 0.845  | 0.832  
   
   | 0.851   
   
  | 0.827  | 0.832  | 0.840  | 0.836  | 0.845   | 0.836  | 0.826   | 0.833   | 0.847   
  | 0.839  | 0.837  | 0.844  |
| 0.821  | 0.833  | 0.838  | 0.831  | 0.828  
   
   | 0.847   
   
  | 0.831  | 0.834  | 0.834  | 0.832  | 0.848   | 0.826  | 0.817   | 0.834   | 0.836   
  | 0.843  | 0.843  | 0.838  |
| 0.819  | 0.825  | 0.825  | 0.824  | 0.815  
   
   | 0.845   
   
  | 0.812  | 0.817  | 0.819  | 0.820  | 0.831   | 0.826  | 0.796   | 0.807   | 0.834   
  | 0.824  | 0.816  | 0.834  |
| 0.816  | 0.809  | 0.822  | 0.820  | 0.814  
   
   | 0.842   
   
  | 0.815  | 0.821  | 0.823  | 0.820  | 0.832   | 0.821  | 0.797   | 0.812   | 0.834   
  | 0.818  | 0.819  | 0.819  |
|  |  |  |  |  
   
   |   
   
  |  |  |  |  |   |  |   |   |   
  |  |  | 0.841  |
| 0.810  | 0.838  | 0.828  | 0.831  | 0.816  
   
   | 0.835   
   
  | 0.823  | 0.826  | 0.828  | 0.829  | 0.835   | 0.816  | 0.810   | 0.825   | 0.833   
  | 0.829  | 0.833  | 0.041  |
| 0.810  | 0.838  | 0.828  | 0.831  | 0.816  
   
   | 0.835   
   
  | 0.823  | 0.826  | 0.828  | 0.829  | 0.835   | 0.816  | 0.810   | 0.825   | 0.833   
  | 0.829  | 0.833  | 0.641  |
| 37   | 38   | 39   | 40   | 41   
   
   | 42  
   
  | 43   | 44   | 45   | 46   | 47  | 48   | 49  | 50  |   
  | Mean   | Max  | Min  |
| <b>37</b><br>9513  | <b>38</b><br>9560  | <b>39</b><br>9528  | <b>40</b><br>9484  | <b>41</b><br>9548  
   
   | <b>42</b><br>9477   
   
  | <b>43</b> 9436   | <b>44</b><br>9471  | <b>45</b><br>9495  | <b>46</b> 9577   | <b>47</b><br>9511   | <b>48</b><br>9445  | <b>49</b><br>9485   | <b>50</b> 9538  |   
  | <b>Mean</b> 9513.3   | <b>Max</b> 9581  | <b>Min</b><br>9436   |
| <b>37</b><br>9513<br>1054  | 38<br>9560<br>1007   | <b>39</b><br>9528<br>1039  | <b>40</b><br>9484<br>1083  | <b>41</b><br>9548<br>1019  
   
   | <b>42</b><br>9477<br>1090   
   
  | <b>43</b><br>9436<br>1131  | <b>44</b><br>9471<br>1096  | <b>45</b><br>9495<br>1072  | <b>46</b><br>9577<br>990   | <b>47</b><br>9511<br>1056   | <b>48</b><br>9445<br>1122  | <b>49</b><br>9485<br>1082   | <b>50</b><br>9538<br>1029   |   
  | Mean<br>9513.3<br>1053.7   | Max<br>9581<br>1131  | <b>Min</b><br>9436<br>986  |
| <b>37</b><br>9513<br>1054<br>0.309   | 38<br>9560<br>1007<br>0.327  | 39<br>9528<br>1039<br>0.278  | <b>40</b><br>9484<br>1083<br>0.302   | <b>41</b><br>9548<br>1019<br>0.295   
   
   | <b>42</b><br>9477<br>1090<br>0.303  
   
  | <b>43</b><br>9436<br>1131<br>0.304   | <b>44</b><br>9471<br>1096<br>0.302   | <b>45</b><br>9495<br>1072<br>0.311   | <b>46</b><br>9577<br>990<br>0.287  | <b>47</b><br>9511<br>1056<br>0.307  | 48<br>9445<br>1122<br>0.295  | <b>49</b><br>9485<br>1082<br>0.291  | <b>50</b><br>9538<br>1029<br>0.296  |   
  | Mean<br>9513.3<br>1053.7<br>0.2993   | Max<br>9581<br>1131<br>0.327   | Min<br>9436<br>986<br>0.275  |
| 37<br>9513<br>1054<br>0.309<br>0.680   | 38<br>9560<br>1007<br>0.327<br>0.684   | 39<br>9528<br>1039<br>0.278<br>0.679   | <b>40</b><br>9484<br>1083<br>0.302<br>0.682  | 9548<br>1019<br>0.295<br>0.654   
   
   | 9477<br>1090<br>0.303<br>0.701  
   
  | 43<br>9436<br>1131<br>0.304<br>0.691   | 9471<br>1096<br>0.302<br>0.675   | 45<br>9495<br>1072<br>0.311<br>0.683   | <b>46</b><br>9577<br>990<br>0.287<br>0.683   | <b>47</b><br>9511<br>1056<br>0.307<br>0.676   | 48<br>9445<br>1122<br>0.295<br>0.688   | <b>49</b> 9485 1082 0.291 0.658   | 50<br>9538<br>1029<br>0.296<br>0.684  |   
  | Mean<br>9513.3<br>1053.7<br>0.2993<br>0.6795   | Max<br>9581<br>1131<br>0.327<br>0.701  | 9436<br>986<br>0.275<br>0.647  |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641  | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646  | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625  | 40<br>9484<br>1083<br>0.302<br>0.682<br>0.644  | 9548<br>1019<br>0.295<br>0.654<br>0.621  
   
   | 42<br>9477<br>1090<br>0.303<br>0.701<br>0.659   
   
  | 43<br>9436<br>1131<br>0.304<br>0.691<br>0.637  | 44<br>9471<br>1096<br>0.302<br>0.675<br>0.625  | 45<br>9495<br>1072<br>0.311<br>0.683<br>0.652  | <b>46</b><br>9577<br>990<br>0.287<br>0.683<br>0.630  | 9511<br>1056<br>0.307<br>0.676<br>0.653   | 48<br>9445<br>1122<br>0.295<br>0.688<br>0.634  | 49<br>9485<br>1082<br>0.291<br>0.658<br>0.619   | 50<br>9538<br>1029<br>0.296<br>0.684<br>0.654   | -   
  | Mean<br>9513.3<br>1053.7<br>0.2993<br>0.6795<br>0.6413   | Max<br>9581<br>1131<br>0.327<br>0.701<br>0.666   | Min<br>9436<br>986<br>0.275<br>0.647<br>0.605  |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641<br>0.733   | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646<br>0.737   | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625<br>0.726   | 40<br>9484<br>1083<br>0.302<br>0.682<br>0.644<br>0.733   | 9548<br>1019<br>0.295<br>0.654<br>0.621<br>0.714   
   
   | 42<br>9477<br>1090<br>0.303<br>0.701<br>0.659<br>0.760  
   
  | 9436<br>1131<br>0.304<br>0.691<br>0.637<br>0.730   | 9471<br>1096<br>0.302<br>0.675<br>0.625<br>0.727   | 45<br>9495<br>1072<br>0.311<br>0.683<br>0.652<br>0.737   | 46<br>9577<br>990<br>0.287<br>0.683<br>0.630<br>0.713  | <b>47</b><br>9511<br>1056<br>0.307<br>0.676<br>0.653<br>0.737   | 48<br>9445<br>1122<br>0.295<br>0.688<br>0.634<br>0.744   | 49<br>9485<br>1082<br>0.291<br>0.658<br>0.619<br>0.704  | 50<br>9538<br>1029<br>0.296<br>0.684<br>0.654<br>0.733  |   
  | Mean<br>9513.3<br>1053.7<br>0.2993<br>0.6795<br>0.6413<br>0.7315   | Max<br>9581<br>1131<br>0.327<br>0.701<br>0.666<br>0.760  | 9436<br>986<br>0.275<br>0.647<br>0.605<br>0.704  |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641<br>0.733<br>0.693  | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646<br>0.737<br>0.713  | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625<br>0.726<br>0.700  | 40<br>9484<br>1083<br>0.302<br>0.682<br>0.644<br>0.733<br>0.705  | 9548<br>1019<br>0.295<br>0.654<br>0.621<br>0.714<br>0.702  
   
   | 9477<br>1090<br>0.303<br>0.701<br>0.659<br>0.760<br>0.733   
   
  | 9436<br>1131<br>0.304<br>0.691<br>0.637<br>0.730<br>0.714  | 9471<br>1096<br>0.302<br>0.675<br>0.625<br>0.727<br>0.686  | 45<br>9495<br>1072<br>0.311<br>0.683<br>0.652<br>0.737<br>0.711  | 46<br>9577<br>990<br>0.287<br>0.683<br>0.630<br>0.713<br>0.688   | 9511<br>1056<br>0.307<br>0.676<br>0.653<br>0.737<br>0.723   | 48<br>9445<br>1122<br>0.295<br>0.688<br>0.634<br>0.744<br>0.705  | 9485<br>1082<br>0.291<br>0.658<br>0.619<br>0.704<br>0.678   | 50<br>9538<br>1029<br>0.296<br>0.684<br>0.654<br>0.733<br>0.715   |   
  | Mean<br>9513.3<br>1053.7<br>0.2993<br>0.6795<br>0.6413<br>0.7315<br>0.7053   | Max<br>9581<br>1131<br>0.327<br>0.701<br>0.666<br>0.760<br>0.733   | Min<br>9436<br>986<br>0.275<br>0.647<br>0.605<br>0.704<br>0.678  |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641<br>0.733<br>0.693<br>0.741                                     | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646<br>0.737<br>0.713  | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625<br>0.726<br>0.700<br>0.723   | 40<br>9484<br>1083<br>0.302<br>0.682<br>0.644<br>0.733<br>0.705  | 9548<br>1019<br>0.295<br>0.654<br>0.621<br>0.714<br>0.702<br>0.736   
   
   | 9477<br>1090<br>0.303<br>0.701<br>0.659<br>0.760<br>0.733<br>0.761  
   
  | 9436<br>1131<br>0.304<br>0.691<br>0.637<br>0.730<br>0.714  | 9471<br>1096<br>0.302<br>0.675<br>0.625<br>0.727<br>0.686<br>0.719   | 9495<br>1072<br>0.311<br>0.683<br>0.652<br>0.737<br>0.711  | 46<br>9577<br>990<br>0.287<br>0.683<br>0.630<br>0.713<br>0.688<br>0.728  | 9511<br>1056<br>0.307<br>0.676<br>0.653<br>0.737<br>0.723<br>0.750  | 9445<br>1122<br>0.295<br>0.688<br>0.634<br>0.744<br>0.705<br>0.740   | 9485<br>1082<br>0.291<br>0.658<br>0.619<br>0.704<br>0.678<br>0.712  | 9538<br>1029<br>0.296<br>0.684<br>0.654<br>0.733<br>0.715   |   
  | Mean<br>9513.3<br>1053.7<br>0.2993<br>0.6795<br>0.6413<br>0.7315<br>0.7053<br>0.7359   | Max<br>9581<br>1131<br>0.327<br>0.701<br>0.666<br>0.760<br>0.733<br>0.761  | Min<br>9436<br>986<br>0.275<br>0.647<br>0.605<br>0.704<br>0.678<br>0.712   |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641<br>0.733<br>0.693<br>0.741<br>0.700                            | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646<br>0.737<br>0.713<br>0.749<br>0.726  | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625<br>0.726<br>0.700<br>0.723<br>0.706  | 40<br>9484<br>1083<br>0.302<br>0.682<br>0.644<br>0.733<br>0.705<br>0.741   | 9548<br>1019<br>0.295<br>0.654<br>0.621<br>0.714<br>0.702<br>0.736<br>0.711  
   
   | 9477<br>1090<br>0.303<br>0.701<br>0.659<br>0.760<br>0.733<br>0.761<br>0.740   
   
  | 9436<br>1131<br>0.304<br>0.691<br>0.637<br>0.730<br>0.714<br>0.744   | 9471<br>1096<br>0.302<br>0.675<br>0.625<br>0.727<br>0.686<br>0.719<br>0.694  | 9495<br>1072<br>0.311<br>0.683<br>0.652<br>0.737<br>0.711<br>0.735<br>0.719  | 46<br>9577<br>990<br>0.287<br>0.683<br>0.630<br>0.713<br>0.688<br>0.728<br>0.693   | 9511<br>1056<br>0.307<br>0.676<br>0.653<br>0.737<br>0.723<br>0.750<br>0.736   | 48<br>9445<br>1122<br>0.295<br>0.688<br>0.634<br>0.744<br>0.705<br>0.740   | 9485<br>1082<br>0.291<br>0.658<br>0.619<br>0.704<br>0.678<br>0.712<br>0.692   | 50<br>9538<br>1029<br>0.296<br>0.684<br>0.654<br>0.733<br>0.715<br>0.733  |   
  | Mean<br>9513.3<br>1053.7<br>0.2993<br>0.6795<br>0.6413<br>0.7315<br>0.7053<br>0.7359<br>0.7129   | Max<br>9581<br>1131<br>0.327<br>0.701<br>0.666<br>0.760<br>0.733<br>0.761<br>0.740   | Min<br>9436<br>986<br>0.275<br>0.647<br>0.605<br>0.704<br>0.678<br>0.712<br>0.692  |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641<br>0.733<br>0.693<br>0.741<br>0.700<br>0.832                   | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646<br>0.737<br>0.713<br>0.749<br>0.726<br>0.831   | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625<br>0.726<br>0.700<br>0.723<br>0.706<br>0.838   | 40<br>9484<br>1083<br>0.302<br>0.682<br>0.644<br>0.733<br>0.705<br>0.741<br>0.707<br><b>0.837</b>  | 41<br>9548<br>1019<br>0.295<br>0.654<br>0.621<br>0.714<br>0.702<br>0.736<br>0.711<br>0.799   
   
   | 9477<br>1090<br>0.303<br>0.701<br>0.659<br>0.760<br>0.733<br>0.761<br>0.740<br><b>0.839</b>   
   
  | 9436<br>1131<br>0.304<br>0.691<br>0.637<br>0.730<br>0.714<br>0.744<br>0.717<br><b>0.848</b>  | 9471<br>1096<br>0.302<br>0.675<br>0.625<br>0.727<br>0.686<br>0.719<br>0.694<br>0.829   | 9495<br>1072<br>0.311<br>0.683<br>0.652<br>0.737<br>0.711<br>0.735<br>0.719  | 46<br>9577<br>990<br>0.287<br>0.683<br>0.630<br>0.713<br>0.688<br>0.728<br>0.693<br><b>0.829</b>   | 9511<br>1056<br>0.307<br>0.676<br>0.653<br>0.737<br>0.723<br>0.750<br>0.736<br><b>0.820</b>   | 48<br>9445<br>1122<br>0.295<br>0.688<br>0.634<br>0.744<br>0.705<br>0.740<br>0.716  | 9485<br>1082<br>0.291<br>0.658<br>0.619<br>0.704<br>0.678<br>0.712<br>0.692<br><b>0.821</b>   | 50<br>9538<br>1029<br>0.296<br>0.684<br>0.654<br>0.733<br>0.715<br>0.733<br>0.708<br><b>0.831</b>   | -   
  | Mean 9513.3 1053.7 0.2993 0.6795 0.6413 0.7315 0.7053 0.7359 0.7129 0.8356   | Max<br>9581<br>1131<br>0.327<br>0.701<br>0.666<br>0.760<br>0.733<br>0.761<br>0.740<br><b>0.854</b>   | Min<br>9436<br>986<br>0.275<br>0.647<br>0.605<br>0.704<br>0.678<br>0.712<br>0.692<br>0.799   |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641<br>0.733<br>0.693<br>0.741<br>0.700<br>0.832<br>0.828          | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646<br>0.737<br>0.713<br>0.749<br>0.726<br>0.831<br>0.829  | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625<br>0.726<br>0.700<br>0.723<br>0.706<br><b>0.838</b><br><b>0.843</b>  | 40<br>9484<br>1083<br>0.302<br>0.682<br>0.644<br>0.733<br>0.705<br>0.741<br>0.707<br>0.837<br>0.829  | 9548<br>1019<br>0.295<br>0.654<br>0.621<br>0.714<br>0.702<br>0.736<br>0.711<br>0.799<br>0.806  
   
   | 9477<br>1090<br>0.303<br>0.701<br>0.659<br>0.760<br>0.733<br>0.761<br>0.740<br>0.839<br>0.833   
   
  | 9436<br>1131<br>0.304<br>0.691<br>0.637<br>0.730<br>0.714<br>0.744<br>0.717<br>0.848<br>0.833  | 9471<br>1096<br>0.302<br>0.675<br>0.625<br>0.727<br>0.686<br>0.719<br>0.694<br>0.829   | 9495<br>1072<br>0.311<br>0.683<br>0.652<br>0.737<br>0.711<br>0.735<br>0.719<br>0.838<br>0.834  | 9577<br>990<br>0.287<br>0.683<br>0.630<br>0.713<br>0.688<br>0.728<br>0.693<br>0.829  | 9511<br>1056<br>0.307<br>0.676<br>0.653<br>0.737<br>0.723<br>0.750<br>0.736<br>0.820<br>0.815   | 48<br>9445<br>1122<br>0.295<br>0.688<br>0.634<br>0.744<br>0.705<br>0.740<br>0.716<br>0.834<br>0.832  | 49<br>9485<br>1082<br>0.291<br>0.658<br>0.619<br>0.704<br>0.678<br>0.712<br>0.692<br>0.821  | 50<br>9538<br>1029<br>0.296<br>0.684<br>0.654<br>0.733<br>0.715<br>0.733<br>0.708<br>0.831<br>0.827   | -   
  | Mean 9513.3 1053.7 0.2993 0.6795 0.6413 0.7315 0.7053 0.7359 0.7129 0.8356 0.8316  | Max<br>9581<br>1131<br>0.327<br>0.701<br>0.666<br>0.760<br>0.733<br>0.761<br>0.740<br>0.854<br>0.851   | Min<br>9436<br>986<br>0.275<br>0.647<br>0.605<br>0.704<br>0.678<br>0.712<br>0.692<br>0.799   |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641<br>0.733<br>0.693<br>0.741<br>0.700<br>0.832<br>0.828<br>0.807 | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646<br>0.737<br>0.713<br>0.749<br>0.726<br>0.831<br>0.829<br>0.812   | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625<br>0.726<br>0.700<br>0.723<br>0.706<br>0.838<br>0.843<br>0.823   | 9484<br>1083<br>0.302<br>0.682<br>0.644<br>0.733<br>0.705<br>0.741<br>0.707<br>0.837<br>0.829<br>0.813   | 9548<br>1019<br>0.295<br>0.654<br>0.621<br>0.714<br>0.702<br>0.736<br>0.711<br>0.799<br>0.806<br>0.795   
   
   | 9477<br>1090<br>0.303<br>0.701<br>0.659<br>0.760<br>0.733<br>0.761<br>0.740<br>0.839<br>0.833<br>0.826  
   
  | 9436<br>1131<br>0.304<br>0.691<br>0.637<br>0.730<br>0.714<br>0.744<br>0.717<br><b>0.848</b><br><b>0.833</b><br>0.831   | 9471<br>1096<br>0.302<br>0.675<br>0.625<br>0.727<br>0.686<br>0.719<br>0.694<br>0.829<br>0.828<br>0.813   | 9495<br>1072<br>0.311<br>0.683<br>0.652<br>0.737<br>0.711<br>0.735<br>0.719<br>0.838<br>0.834<br>0.828   | 9577<br>990<br>0.287<br>0.683<br>0.630<br>0.713<br>0.688<br>0.728<br>0.693<br>0.829<br>0.824   | 9511<br>1056<br>0.307<br>0.676<br>0.653<br>0.737<br>0.723<br>0.750<br>0.736<br>0.820<br>0.815<br>0.808  | 9445<br>1122<br>0.295<br>0.688<br>0.634<br>0.744<br>0.705<br>0.740<br>0.716<br>0.834<br>0.832<br>0.826   | 49<br>9485<br>1082<br>0.291<br>0.658<br>0.619<br>0.704<br>0.678<br>0.712<br>0.692<br>0.821<br>0.820<br>0.806  | 9538<br>1029<br>0.296<br>0.684<br>0.654<br>0.733<br>0.715<br>0.733<br>0.708<br><b>0.831</b><br><b>0.827</b>   | -   
  | Mean 9513.3 1053.7 0.2993 0.6795 0.6413 0.7315 0.7053 0.7359 0.7129 0.8356 0.8316 0.8196   | Max<br>9581<br>1131<br>0.327<br>0.701<br>0.666<br>0.760<br>0.733<br>0.761<br>0.740<br>0.854<br>0.845   | Min<br>9436<br>986<br>0.275<br>0.647<br>0.605<br>0.704<br>0.678<br>0.712<br>0.692<br>0.799<br>0.806<br>0.795   |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641<br>0.733<br>0.693<br>0.741<br>0.700<br>0.832<br>0.828<br>0.807 | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646<br>0.737<br>0.713<br>0.749<br>0.829<br>0.812<br>0.815  | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625<br>0.706<br>0.726<br>0.703<br>0.703<br>0.823<br>0.823<br>0.823   | 40<br>9484<br>1083<br>0.302<br>0.682<br>0.644<br>0.733<br>0.705<br>0.741<br>0.707<br>0.837<br>0.829<br>0.813<br>0.808  | 9548<br>1019<br>0.295<br>0.654<br>0.621<br>0.714<br>0.702<br>0.736<br>0.711<br>0.799<br>0.806<br>0.795   
   
   | 42<br>9477<br>1090<br>0.303<br>0.701<br>0.659<br>0.760<br>0.733<br>0.761<br>0.740<br>0.839<br>0.833<br>0.826<br>0.814   
   
  | 9436<br>1131<br>0.304<br>0.691<br>0.637<br>0.730<br>0.714<br>0.744<br>0.717<br><b>0.848</b><br><b>0.833</b><br>0.831   | 44<br>9471<br>1096<br>0.302<br>0.675<br>0.625<br>0.727<br>0.686<br>0.719<br>0.694<br>0.829<br>0.828<br>0.813<br>0.805  | 9495<br>1072<br>0.311<br>0.683<br>0.652<br>0.737<br>0.711<br>0.735<br>0.719<br>0.838<br>0.834<br>0.828   | 46<br>9577<br>990<br>0.287<br>0.683<br>0.630<br>0.713<br>0.688<br>0.728<br>0.693<br>0.693<br>0.829<br>0.824<br>0.814   | 9511<br>1056<br>0.307<br>0.676<br>0.653<br>0.737<br>0.723<br>0.750<br>0.736<br>0.820<br>0.815<br>0.808<br>0.795   | 48<br>9445<br>1122<br>0.295<br>0.688<br>0.634<br>0.744<br>0.705<br>0.740<br>0.716<br>0.834<br>0.832<br>0.826   | 49<br>9485<br>1082<br>0.291<br>0.658<br>0.619<br>0.704<br>0.678<br>0.712<br>0.692<br>0.821<br>0.806<br>0.813  | 9538<br>1029<br>0.296<br>0.684<br>0.654<br>0.733<br>0.715<br>0.733<br>0.708<br><b>0.831</b><br><b>0.827</b><br>0.826<br>0.808   | -   
  | Mean<br>9513.3<br>1053.7<br>0.2993<br>0.6795<br>0.6413<br>0.7315<br>0.7053<br>0.7359<br>0.7129<br>0.8356<br>0.8316<br>0.8196   | Max           9581           1131           0.327           0.701           0.666           0.760           0.733           0.761           0.740           0.854           0.845           0.842  | Min<br>9436<br>986<br>0.275<br>0.647<br>0.605<br>0.704<br>0.678<br>0.712<br>0.699<br>0.799<br>0.806<br>0.795<br>0.785  |
| 37<br>9513<br>1054<br>0.309<br>0.680<br>0.641<br>0.733<br>0.693<br>0.741<br>0.700<br>0.832<br>0.828<br>0.807 | 38<br>9560<br>1007<br>0.327<br>0.684<br>0.646<br>0.737<br>0.713<br>0.749<br>0.726<br>0.831<br>0.829<br>0.812   | 39<br>9528<br>1039<br>0.278<br>0.679<br>0.625<br>0.726<br>0.700<br>0.723<br>0.706<br>0.838<br>0.843<br>0.823   | 9484<br>1083<br>0.302<br>0.682<br>0.644<br>0.733<br>0.705<br>0.741<br>0.707<br>0.837<br>0.829<br>0.813   | 9548<br>1019<br>0.295<br>0.654<br>0.621<br>0.714<br>0.702<br>0.736<br>0.711<br>0.799<br>0.806<br>0.795   
   
   | 9477<br>1090<br>0.303<br>0.701<br>0.659<br>0.760<br>0.733<br>0.761<br>0.740<br>0.839<br>0.833<br>0.826  
   
  | 9436<br>1131<br>0.304<br>0.691<br>0.637<br>0.730<br>0.714<br>0.744<br>0.717<br><b>0.848</b><br><b>0.833</b><br>0.831   | 9471<br>1096<br>0.302<br>0.675<br>0.625<br>0.727<br>0.686<br>0.719<br>0.694<br>0.829<br>0.828<br>0.813   | 9495<br>1072<br>0.311<br>0.683<br>0.652<br>0.737<br>0.711<br>0.735<br>0.719<br>0.838<br>0.834<br>0.828   | 9577<br>990<br>0.287<br>0.683<br>0.630<br>0.713<br>0.688<br>0.728<br>0.693<br>0.829<br>0.824   | 9511<br>1056<br>0.307<br>0.676<br>0.653<br>0.737<br>0.723<br>0.750<br>0.736<br>0.820<br>0.815<br>0.808  | 9445<br>1122<br>0.295<br>0.688<br>0.634<br>0.744<br>0.705<br>0.740<br>0.716<br>0.834<br>0.832<br>0.826   | 49<br>9485<br>1082<br>0.291<br>0.658<br>0.619<br>0.704<br>0.678<br>0.712<br>0.692<br>0.821<br>0.820<br>0.806  | 9538<br>1029<br>0.296<br>0.684<br>0.654<br>0.733<br>0.715<br>0.733<br>0.708<br><b>0.831</b><br><b>0.827</b>   | -   
  | Mean 9513.3 1053.7 0.2993 0.6795 0.6413 0.7315 0.7053 0.7359 0.7129 0.8356 0.8316 0.8196   | Max<br>9581<br>1131<br>0.327<br>0.701<br>0.666<br>0.760<br>0.733<br>0.761<br>0.740<br>0.854<br>0.845   | Min<br>9436<br>986<br>0.275<br>0.647<br>0.605<br>0.704<br>0.678<br>0.712<br>0.692<br>0.799<br>0.806<br>0.795   |
|  | 9581<br>986<br>0.307<br>0.662<br>0.631<br>0.717<br>0.717<br>0.686<br>0.829<br>0.803<br>0.813<br>0.822<br>19<br>9554<br>1013<br>0.316<br>0.677<br>0.635<br>0.735<br>0.711<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.736<br>0.737<br>0.736<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.736<br>0.737<br>0.737<br>0.738<br>0.731<br>0.736<br>0.737<br>0.738<br>0.731<br>0.731<br>0.731<br>0.731<br>0.731<br>0.731 | 9581 9521 986 1046 0.307 0.285 0.662 0.672 0.631 0.638 0.729 0.723 0.704 0.705 0.829 0.820 0.836 0.824 0.809 0.811 0.813 0.804 0.822 0.823 0.667 0.680 0.665 0.644 0.735 0.721 0.711 0.704 0.736 0.729 0.723 0.712 0.711 0.704 0.736 0.729 0.723 0.715 0.831 0.847 0.821 0.833 0.819 0.825 | 9581 9521 9526 986 1046 1041 0.307 0.285 0.296 0.662 0.672 0.663 0.631 0.638 0.605 0.631 0.638 0.605 0.729 0.723 0.729 0.704 0.705 0.701 0.829 0.820 0.822 0.836 0.824 0.827 0.809 0.811 0.810 0.813 0.804 0.804 0.822 0.823 0.810  19 20 21 9554 9527 9542 1013 1040 1025 0.316 0.303 0.286 0.677 0.680 0.685 0.635 0.644 0.642 0.735 0.721 0.738 0.711 0.704 0.709 0.736 0.729 0.734 0.723 0.715 0.703 0.831 0.847 0.837 0.821 0.833 0.838 0.819 0.825 0.825 | 9581         9521         9526         9537           986         1046         1041         1030           0.307         0.285         0.296         0.312           0.662         0.672         0.663         0.678           0.631         0.638         0.605         0.648           0.707         0.721         0.720         0.729           0.686         0.696         0.692         0.706           0.729         0.723         0.729         0.742           0.704         0.705         0.701         0.710           0.829         0.820         0.822         0.826           0.836         0.824         0.827         0.820           0.830         0.811         0.810         0.817           0.813         0.804         0.804         0.808           0.822         0.823         0.810         0.822           19         20         21         22           9554         9527         9542         9518           1013         1040         1025         1049           0.366         0.303         0.286         0.299           0.677         0.680         0.685 <td>9581         9521         9526         9537         9477           986         1046         1041         1030         1090           0.307         0.285         0.296         0.312         0.312           0.662         0.672         0.663         0.678         0.650           0.717         0.721         0.720         0.729         0.720           0.686         0.696         0.692         0.706         0.715           0.729         0.729         0.729         0.726         0.704         0.705         0.701         0.710         0.717           0.829         0.820         0.822         0.826         0.854           0.836         0.824         0.827         0.820         0.842           0.836         0.824         0.827         0.820         0.842           0.836         0.824         0.827         0.820         0.842           0.839         0.811         0.810         0.817         0.828           0.822         0.823         0.810         0.822         0.849           0.822         0.823         0.810         0.822         0.849           0.824         0.827         9518         <t< td=""><td>9581         9521         9526         9537         9477         9516           986         1046         1041         1030         1090         1051           0.307         0.285         0.296         0.312         0.312         0.310           0.662         0.672         0.663         0.678         0.672         0.664           0.631         0.638         0.605         0.648         0.650         0.634           0.770         0.720         0.729         0.720         0.736         0.675         0.670           0.686         0.696         0.692         0.706         0.715         0.707           0.729         0.723         0.729         0.742         0.726         0.733           0.704         0.705         0.701         0.710         0.717         0.716           0.829         0.820         0.822         0.826         0.854         0.839           0.836         0.824         0.827         0.820         0.842         0.821           0.813         0.804         0.804         0.808         0.828         0.820           0.822         0.823         0.810         0.827         0.849         0.821</td><td>9581         9521         9526         9537         9477         9516         9468           986         1046         1041         1030         1090         1051         1099           0.307         0.285         0.296         0.312         0.312         0.310         0.306           0.662         0.672         0.663         0.678         0.672         0.684         0.693           0.631         0.638         0.605         0.648         0.650         0.634         0.660           0.770         0.721         0.720         0.729         0.720         0.736         0.746           0.686         0.696         0.692         0.706         0.715         0.707         0.716           0.729         0.723         0.729         0.742         0.726         0.733         0.744           0.704         0.705         0.701         0.710         0.717         0.716         0.723           0.829         0.820         0.822         0.826         0.854         0.839         0.854           0.836         0.824         0.827         0.820         0.842         0.842         0.841           0.830         0.811         0.813</td><td>9581         9521         9526         9537         9477         9516         9468         9493           986         1046         1041         1030         1090         1051         1099         1074           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304           0.662         0.672         0.663         0.678         0.650         0.634         0.660         0.661           0.717         0.721         0.720         0.729         0.720         0.736         0.746         0.742           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723           0.729         0.729         0.720         0.733         0.744         0.754           0.704         0.705         0.701         0.710         0.717         0.716         0.723           0.729         0.822         0.826         0.854         0.839         0.854         0.723           0.729         0.723         0.723         0.723         0.723         0.723         0.723           0.729         0.742         0.766         0.733         0.744         0.754</td><td>9581         9521         9526         9537         9477         9516         9468         9493         9517           986         1046         1041         1030         1090         1051         1099         1074         1050           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307           0.662         0.672         0.684         0.693         0.694         0.696           0.631         0.638         0.605         0.648         0.660         0.661         0.645           0.717         0.721         0.720         0.720         0.736         0.746         0.742         0.750           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713           0.729         0.720         0.733         0.744         0.754         0.747           0.704         0.705         0.701         0.717         0.716         0.723         0.723           0.829         0.820         0.822         0.824         0.834         0.846         0.840           0.836         0.824         0.827         0.820</td><td>9581         9521         9526         9537         9477         9516         9468         9493         9517         9511           986         1046         1041         1030         1090         1051         1099         1074         1050         1056           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.309           0.662         0.672         0.663         0.668         0.669         0.669         0.669         0.670           0.631         0.638         0.605         0.648         0.650         0.634         0.660         0.661         0.645         0.643           0.6717         0.721         0.720         0.729         0.720         0.736         0.746         0.742         0.750         0.730           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713         0.705           0.729         0.723         0.729         0.742         0.726         0.733         0.744         0.754         0.747         0.741           0.704         0.705         0.701         0.710         0.717</td><td>9581         9521         9526         9537     
   9477         9516         9468         9493         9517         9511         9525           986         1046         1041         1030         1090         1051         1099         1074         1050         1056         1042           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.309         0.316           0.662         0.672         0.684         0.663         0.694         0.660         0.674         0.666         0.660         0.664         0.669         0.670         0.671           0.631         0.638         0.605         0.648         0.650         0.634         0.660         0.661         0.645         0.643         0.622           0.717         0.721         0.720         0.729         0.720         0.736         0.742         0.755         0.730         0.722           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713         0.704         0.705         0.701         0.717         0.716         0.723         0.723         0.721</td><td>9581         9521         9526         9537         9477         9516         9468         9493         9517         9511         9525         9588           986         1046         1041         1030         1090         1051         1099         1074         1050         1056         1042         1009           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.309         0.316         0.295           0.662         0.672         0.668         0.669         0.669         0.670         0.677         0.681           0.631         0.638         0.605         0.648         0.650         0.644         0.660         0.661         0.643         0.628         0.644           0.717         0.721         0.720         0.729         0.720         0.736         0.746         0.742         0.750         0.730         0.727         0.736           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713         0.704         0.731         0.710         0.717         0.716         0.723         0.723         0.717         0.</td><td>9581         9521         9526         9537         9477         9516         9468         9493         9517         9511         9525         9558         9501           986         1046         1041         1030         1090         1051         1099         1074         1050         1056         1042         1009         1066           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.307         0.681         0.672           0.662         0.672         0.6684         0.6693         0.694         0.696         0.670         0.6671         0.681           0.631         0.638         0.605         0.648         0.650         0.664         0.660         0.661         0.643         0.628         0.644         0.630           0.717         0.721         0.720         0.729         0.720         0.736         0.746         0.742         0.750         0.730         0.727         0.736         0.749           0.729         0.729         0.720         0.736         0.746         0.742         0.747         0.741         0.713         0.714         0.750         0.745         0</td><td>9581 9521 9526 9537 9477 9516 9468 9493 9517 9511 9525 9558 9501 9477 986 1046 1041 1030 1090 1051 1099 1074 1050 1056 1042 1009 1066 1090 0.307 0.285 0.296 0.312 0.312 0.310 0.306 0.304 0.307 0.309 0.316 0.295 0.298 0.298 0.662 0.672 0.663 0.678 0.672 0.684 0.693 0.694 0.696 0.670 0.677 0.681 0.672 0.694 0.631 0.638 0.605 0.648 0.650 0.634 0.660 0.661 0.645 0.643 0.643 0.648 0.660 0.661 0.645 0.643 0.643 0.644 0.630 0.649 0.717 0.721 0.720 0.729 0.720 0.736 0.746 0.742 0.750 0.730 0.727 0.736 0.733 0.741 0.686 0.696 0.696 0.696 0.696 0.690 0.696 0.690 0.690 0.699 0.699 0.699 0.687 0.713 0.729 0.723 0.729 0.742 0.726 0.733 0.744 0.754 0.747 0.741 0.731 0.745 0.727 0.734 0.704 0.705 0.701 0.710 0.717 0.716 0.723 0.723 0.723 0.729 0.732 0.729 0.822 0.826 0.824 0.839 0.854 0.846 0.840 0.838 0.850 0.832 0.841 0.850 0.834 0.844 0.800 0.811 0.810 0.817 0.828 0.816 0.826 0.820 0.823 0.823 0.837 0.813 0.821 0.836 0.824 0.804 0.808 0.828 0.820 0.830 0.806 0.809 0.811 0.810 0.817 0.828 0.816 0.826 0.830 0.806 0.809 0.815 0.834 0.809 0.811 0.801 0.822 0.849 0.821 0.850 0.832 0.835 0.831 0.841 0.830 0.837 0.823 0.831 0.844 0.808 0.822 0.829 0.829 0.849 0.821 0.850 0.832 0.835 0.831 0.840 0.826 0.839 0.839 0.831 0.841 0.830 0.836 0.830 0.830 0.804 0.806 0.809 0.819 0.829 0.829 0.829 0.829 0.839 0.839 0.831 0.840 0.826 0.832 0.837 0.831 0.821 0.836 0.831 0.804 0.806 0.808 0.822 0.849 0.821 0.850 0.832 0.835 0.831 0.840 0.826 0.832 0.837 0.830</td><td>9581 9521 9526 9537 9477 9516 9468 9493 9517 9511 9525 9558 9501 9477 9562 966 1046 1041 1030 1090 1051 1099 1074 1050 1056 1042 1009 1066 1090 1005 0.307 0.285 0.296 0.312 0.312 0.310 0.306 0.304 0.307 0.309 0.316 0.295 0.298 0.298 0.298 0.662 0.672 0.663 0.678 0.672 0.684 0.693 0.694 0.696 0.670 0.677 0.681 0.672 0.694 0.698 0.631 0.638 0.605 0.648 0.650 0.634 0.660 0.661 0.645 0.643 0.628 0.644 0.630 0.649 0.646 0.717 0.721 0.720 0.729 0.729 0.730 0.746 0.742 0.750 0.730 0.727 0.736 0.733 0.741 0.732 0.686 0.696 0.692 0.706 0.715 0.707 0.716 0.723 0.733 0.705 0.699 0.699 0.699 0.697 0.687 0.729 0.723 0.729 0.720 0.736 0.733 0.744 0.754 0.747 0.741 0.731 0.745 0.727 0.734 0.738 0.704 0.705 0.701 0.710 0.717 0.716 0.723 0.723 0.728 0.717 0.696 0.704 0.700 0.720 0.720 0.829 0.820 0.822 0.826 0.854 0.839 0.854 0.846 0.840 0.838 0.850 0.832 0.841 0.850 0.836 0.836 0.824 0.827 0.820 0.842 0.842 0.851 0.832 0.838 0.831 0.841 0.833 0.835 0.841 0.835 0.833 0.804 0.804 0.804 0.808 0.828 0.820 0.830 0.806 0.809 0.815 0.834 0.809 0.819 0.824 0.811 0.822 0.823 0.810 0.822 0.849 0.821 0.850 0.823 0.835 0.823 0.840 0.826 0.832 0.837 0.813 0.904 0.605 0.685 0.689 0.697 0.699 0.699 0.699 0.699 0.699 0.890 0.899 0</td><td>9581 9521 9526 9537 9477 9516 9468 9493 9517 9511 9525 9558 9501 9477 9562 9519 986 1046 1041 1030 1090 1051 1099 1074 1050 1056 1042 1009 1066 1090 1005 1048 0.307 0.285 0.296 0.312 0.312 0.310 0.306 0.304 0.307 0.309 0.316 0.295 0.298 0.298 0.299 0.293 0.662 0.672 0.663 0.678 0.672 0.684 0.693 0.694 0.696 0.670 0.677 0.681 0.672 0.694 0.689 0.677 0.631 0.638 0.605 0.648 0.650 0.634 0.660 0.661 0.645 0.643 0.628 0.644 0.630 0.649 0.646 0.642 0.717 0.721 0.720 0.729 0.729 0.720 0.736 0.746 0.742 0.750 0.730 0.730 0.730 0.737 0.733 0.741 0.732 0.736 0.686 0.696 0.696 0.696 0.696 0.697 0.699 0.699 0.699 0.697 0.731 0.707 0.714 0.729 0.723 0.729 0.742 0.726 0.733 0.744 0.723 0.733 0.724 0.731 0.707 0.714 0.700 0.701 0.710 0.717 0.716 0.723 0.733 0.723 0.728 0.717 0.699 0.699 0.699 0.697 0.733 0.736 0.738 0.736 0.829 0.822 0.826 0.854 0.839 0.854 0.846 0.846 0.840 0.838 0.850 0.832 0.841 0.850 0.824 0.836 0.824 0.827 0.820 0.842 0.842 0.842 0.851 0.832 0.838 0.831 0.841 0.833 0.835 0.841 0.825 0.822 0.822 0.823 0.810 0.822 0.849 0.821 0.850 0.823 0.823 0.821 0.820 0.822 0.823 0.810 0.822 0.849 0.821 0.850 0.823 0.835 0.832 0.831 0.840 0.824 0.825 0.822 0.826 0.849 0.821 0.850 0.823 0.835 0.832 0.831 0.804 0.802 0.822 0.849 0.821 0.850 0.823 0.835 0.832 0.831 0.804 0.802 0.802 0.822 0.849 0.821 0.850 0.823 0.835 0.835 0.832 0.831 0.804 0.802 0.822 0.829 0.821 0.809 0.811 0.810 0.822 0.849 0.821 0.850 0.823 0.835 0.835 0.832 0.837 0.813 0.841 0.825 0.822 0.826 0.824 0.827 0.809 0.811 0.800 0.822 0.849 0.821 0.830 0.804 0.804 0.804 0.802 0.802 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.809 0.800 0.809 0.8</td><td>9881 9521 9526 9537 9477 9516 9468 9493 9517 9511 9525 9558 9501 9477 9562 9519 9512 966 1046 1041 1030 1090 1051 1099 1074 1050 1056 1042 1009 1066 1090 1005 1048 1055 0.307 0.285 0.296 0.312 0.312 0.310 0.306 0.304 0.307 0.309 0.316 0.295 0.298 0.299 0.293 0.292 0.662 0.672 0.663 0.678 0.672 0.684 0.693 0.694 0.696 0.670 0.677 0.681 0.672 0.694 0.689 0.677 0.681
0.631 0.638 0.605 0.648 0.650 0.634 0.660 0.661 0.645 0.643 0.628 0.644 0.630 0.649 0.646 0.642 0.636 0.717 0.721 0.720 0.729 0.729 0.720 0.736 0.746 0.742 0.750 0.730 0.727 0.736 0.736 0.733 0.741 0.732 0.736 0.666 0.666 0.666 0.666 0.666 0.670 0.694 0.699</td></t<></td> | 9581         9521         9526         9537         9477           986         1046         1041         1030         1090           0.307         0.285         0.296         0.312         0.312           0.662         0.672         0.663         0.678         0.650           0.717         0.721         0.720         0.729         0.720           0.686         0.696         0.692         0.706         0.715           0.729         0.729         0.729         0.726         0.704         0.705         0.701         0.710         0.717           0.829         0.820         0.822         0.826         0.854           0.836         0.824         0.827         0.820         0.842           0.836         0.824         0.827         0.820         0.842           0.836         0.824         0.827         0.820         0.842           0.839         0.811         0.810         0.817         0.828           0.822         0.823         0.810         0.822         0.849           0.822         0.823         0.810         0.822         0.849           0.824         0.827         9518 <t< td=""><td>9581         9521         9526         9537         9477         9516           986         1046         1041         1030         1090         1051           0.307         0.285         0.296         0.312         0.312         0.310           0.662         0.672         0.663         0.678         0.672         0.664           0.631         0.638         0.605         0.648         0.650         0.634           0.770         0.720         0.729         0.720         0.736         0.675         0.670           0.686         0.696         0.692         0.706         0.715         0.707           0.729         0.723         0.729         0.742         0.726         0.733           0.704         0.705         0.701         0.710         0.717         0.716           0.829         0.820         0.822         0.826         0.854         0.839           0.836         0.824         0.827         0.820         0.842         0.821           0.813         0.804         0.804         0.808         0.828         0.820           0.822         0.823         0.810         0.827         0.849         0.821</td><td>9581         9521         9526         9537         9477         9516         9468           986         1046         1041         1030         1090         1051         1099           0.307         0.285         0.296         0.312         0.312         0.310         0.306           0.662         0.672         0.663         0.678         0.672         0.684         0.693           0.631         0.638         0.605         0.648         0.650         0.634         0.660           0.770         0.721         0.720         0.729         0.720         0.736         0.746           0.686         0.696         0.692         0.706         0.715         0.707         0.716           0.729         0.723         0.729         0.742         0.726         0.733         0.744           0.704         0.705         0.701         0.710         0.717         0.716         0.723           0.829         0.820         0.822         0.826         0.854         0.839         0.854           0.836         0.824         0.827         0.820         0.842         0.842         0.841           0.830         0.811         0.813</td><td>9581         9521         9526         9537         9477         9516         9468         9493           986         1046         1041         1030         1090         1051         1099         1074           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304           0.662         0.672         0.663         0.678         0.650         0.634         0.660         0.661           0.717         0.721         0.720         0.729         0.720         0.736         0.746         0.742           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723           0.729         0.729         0.720         0.733         0.744         0.754           0.704         0.705         0.701         0.710         0.717         0.716         0.723           0.729         0.822         0.826         0.854         0.839         0.854         0.723           0.729         0.723         0.723         0.723         0.723         0.723         0.723           0.729         0.742         0.766         0.733         0.744         0.754</td><td>9581         9521         9526         9537         9477         9516         9468         9493         9517           986         1046         1041         1030         1090         1051         1099         1074         1050           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307           0.662         0.672         0.684         0.693         0.694         0.696           0.631         0.638         0.605         0.648         0.660         0.661         0.645           0.717         0.721         0.720         0.720         0.736         0.746         0.742         0.750           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713           0.729         0.720         0.733         0.744         0.754         0.747           0.704         0.705         0.701         0.717         0.716         0.723         0.723           0.829         0.820         0.822         0.824         0.834         0.846         0.840           0.836         0.824         0.827         0.820</td><td>9581         9521         9526         9537         9477         9516         9468         9493         9517         9511           986         1046         1041         1030         1090         1051         1099         1074         1050         1056           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.309           0.662         0.672         0.663         0.668         0.669         0.669         0.669         0.670           0.631         0.638         0.605         0.648         0.650         0.634         0.660         0.661         0.645         0.643           0.6717         0.721         0.720         0.729         0.720         0.736         0.746         0.742         0.750         0.730           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713         0.705           0.729         0.723         0.729         0.742         0.726         0.733         0.744         0.754         0.747         0.741           0.704         0.705         0.701         0.710         0.717</td><td>9581         9521         9526         9537         9477         9516         9468         9493         9517         9511         9525           986         1046         1041         1030         1090         1051         1099         1074         1050         1056         1042           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.309         0.316           0.662         0.672         0.684         0.663         0.694         0.660         0.674         0.666         0.660         0.664         0.669         0.670         0.671           0.631         0.638         0.605         0.648         0.650         0.634         0.660         0.661         0.645         0.643         0.622           0.717         0.721         0.720         0.729         0.720         0.736         0.742         0.755         0.730         0.722           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713         0.704         0.705         0.701         0.717         0.716         0.723         0.723         0.721</td><td>9581         9521         9526         9537         9477         9516         9468         9493         9517         9511         9525         9588           986         1046         1041         1030         1090         1051         1099         1074         1050         1056         1042         1009           0.307         0.285         0.296         0.312 
       0.312         0.310         0.306         0.304         0.307         0.309         0.316         0.295           0.662         0.672         0.668         0.669         0.669         0.670         0.677         0.681           0.631         0.638         0.605         0.648         0.650         0.644         0.660         0.661         0.643         0.628         0.644           0.717         0.721         0.720         0.729         0.720         0.736         0.746         0.742         0.750         0.730         0.727         0.736           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713         0.704         0.731         0.710         0.717         0.716         0.723         0.723         0.717         0.</td><td>9581         9521         9526         9537         9477         9516         9468         9493         9517         9511         9525         9558         9501           986         1046         1041         1030         1090         1051         1099         1074         1050         1056         1042         1009         1066           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.307         0.681         0.672           0.662         0.672         0.6684         0.6693         0.694         0.696         0.670         0.6671         0.681           0.631         0.638         0.605         0.648         0.650         0.664         0.660         0.661         0.643         0.628         0.644         0.630           0.717         0.721         0.720         0.729         0.720         0.736         0.746         0.742         0.750         0.730         0.727         0.736         0.749           0.729         0.729         0.720         0.736         0.746         0.742         0.747         0.741         0.713         0.714         0.750         0.745         0</td><td>9581 9521 9526 9537 9477 9516 9468 9493 9517 9511 9525 9558 9501 9477 986 1046 1041 1030 1090 1051 1099 1074 1050 1056 1042 1009 1066 1090 0.307 0.285 0.296 0.312 0.312 0.310 0.306 0.304 0.307 0.309 0.316 0.295 0.298 0.298 0.662 0.672 0.663 0.678 0.672 0.684 0.693 0.694 0.696 0.670 0.677 0.681 0.672 0.694 0.631 0.638 0.605 0.648 0.650 0.634 0.660 0.661 0.645 0.643 0.643 0.648 0.660 0.661 0.645 0.643 0.643 0.644 0.630 0.649 0.717 0.721 0.720 0.729 0.720 0.736 0.746 0.742 0.750 0.730 0.727 0.736 0.733 0.741 0.686 0.696 0.696 0.696 0.696 0.690 0.696 0.690 0.690 0.699 0.699 0.699 0.687 0.713 0.729 0.723 0.729 0.742 0.726 0.733 0.744 0.754 0.747 0.741 0.731 0.745 0.727 0.734 0.704 0.705 0.701 0.710 0.717 0.716 0.723 0.723 0.723 0.729 0.732 0.729 0.822 0.826 0.824 0.839 0.854 0.846 0.840 0.838 0.850 0.832 0.841 0.850 0.834 0.844 0.800 0.811 0.810 0.817 0.828 0.816 0.826 0.820 0.823 0.823 0.837 0.813 0.821 0.836 0.824 0.804 0.808 0.828 0.820 0.830 0.806 0.809 0.811 0.810 0.817 0.828 0.816 0.826 0.830 0.806 0.809 0.815 0.834 0.809 0.811 0.801 0.822 0.849 0.821 0.850 0.832 0.835 0.831 0.841 0.830 0.837 0.823 0.831 0.844 0.808 0.822 0.829 0.829 0.849 0.821 0.850 0.832 0.835 0.831 0.840 0.826 0.839 0.839 0.831 0.841 0.830 0.836 0.830 0.830 0.804 0.806 0.809 0.819 0.829 0.829 0.829 0.829 0.839 0.839 0.831 0.840 0.826 0.832 0.837 0.831 0.821 0.836 0.831 0.804 0.806 0.808 0.822 0.849 0.821 0.850 0.832 0.835 0.831 0.840 0.826 0.832 0.837 0.830</td><td>9581 9521 9526 9537 9477 9516 9468 9493 9517 9511 9525 9558 9501 9477 9562 966 1046 1041 1030 1090 1051 1099 1074 1050 1056 1042 1009 1066 1090 1005 0.307 0.285 0.296 0.312 0.312 0.310 0.306 0.304 0.307 0.309 0.316 0.295 0.298 0.298 0.298 0.662 0.672 0.663 0.678 0.672 0.684 0.693 0.694 0.696 0.670 0.677 0.681 0.672 0.694 0.698 0.631 0.638 0.605 0.648 0.650 0.634 0.660 0.661 0.645 0.643 0.628 0.644 0.630 0.649 0.646 0.717 0.721 0.720 0.729 0.729 0.730 0.746 0.742 0.750 0.730 0.727 0.736 0.733 0.741 0.732 0.686 0.696 0.692 0.706 0.715 0.707 0.716 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0.699 0.699</td></t<> | 9581         9521         9526         9537         9477         9516           986         1046         1041         1030         1090         1051           0.307         0.285         0.296         0.312         0.312         0.310           0.662         0.672         0.663         0.678         0.672         0.664           0.631         0.638         0.605         0.648         0.650         0.634           0.770         0.720         0.729         0.720         0.736         0.675         0.670           0.686         0.696         0.692         0.706         0.715         0.707           0.729         0.723         0.729         0.742         0.726         0.733           0.704         0.705         0.701         0.710         0.717         0.716           0.829         0.820         0.822         0.826         0.854         0.839           0.836         0.824         0.827         0.820         0.842         0.821           0.813         0.804         0.804         0.808         0.828         0.820           0.822         0.823         0.810         0.827         0.849         0.821 | 9581         9521         9526         9537         9477         9516         9468           986         1046         1041         1030         1090         1051         1099           0.307         0.285         0.296         0.312         0.312         0.310         0.306           0.662         0.672         0.663         0.678         0.672         0.684         0.693           0.631         0.638         0.605         0.648         0.650         0.634         0.660           0.770         0.721         0.720         0.729         0.720         0.736         0.746           0.686         0.696         0.692         0.706         0.715         0.707         0.716           0.729         0.723         0.729         0.742         0.726         0.733         0.744           0.704         0.705         0.701         0.710         0.717         0.716         0.723           0.829         0.820         0.822         0.826         0.854         0.839         0.854           0.836         0.824         0.827         0.820         0.842         0.842         0.841           0.830         0.811         0.813 | 9581         9521         9526         9537         9477         9516         9468         9493           986         1046         1041         1030         1090         1051         1099         1074           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304           0.662         0.672         0.663         0.678         0.650         0.634         0.660         0.661           0.717         0.721         0.720         0.729         0.720         0.736         0.746         0.742           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723           0.729         0.729         0.720         0.733         0.744         0.754           0.704         0.705         0.701         0.710         0.717         0.716         0.723           0.729         0.822         0.826         0.854         0.839         0.854         0.723           0.729         0.723         0.723         0.723         0.723         0.723         0.723           0.729         0.742         0.766         0.733         0.744         0.754 | 9581         9521         9526         9537         9477         9516         9468         9493         9517           986         1046         1041         1030         1090         1051         1099         1074         1050           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307           0.662         0.672         0.684         0.693         0.694         0.696           0.631         0.638         0.605         0.648         0.660         0.661         0.645           0.717         0.721         0.720         0.720         0.736         0.746         0.742         0.750           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713           0.729         0.720         0.733         0.744         0.754         0.747           0.704         0.705         0.701         0.717         0.716         0.723         0.723           0.829         0.820         0.822         0.824         0.834         0.846         0.840           0.836         0.824         0.827         0.820 | 9581         9521         9526         9537         9477         9516         9468         9493         9517         9511           986         1046         1041         1030         1090         1051         1099         1074         1050         1056           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.309           0.662         0.672         0.663         0.668         0.669         0.669         0.669         0.670           0.631         0.638         0.605         0.648         0.650         0.634         0.660         0.661         0.645         0.643           0.6717         0.721         0.720         0.729         0.720         0.736         0.746         0.742         0.750         0.730           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713         0.705           0.729         0.723         0.729         0.742         0.726         0.733         0.744         0.754         0.747         0.741           0.704         0.705         0.701         0.710         0.717 | 9581         9521         9526         9537         9477         9516         9468         9493         9517         9511         9525           986         1046         1041         1030         1090         1051         1099         1074         1050         1056         1042           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.309         0.316           0.662         0.672         0.684         0.663         0.694         0.660         0.674         0.666         0.660         0.664         0.669         0.670         0.671           0.631         0.638         0.605         0.648         0.650         0.634         0.660         0.661         0.645         0.643         0.622           0.717         0.721         0.720         0.729         0.720         0.736         0.742         0.755         0.730         0.722           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713         0.704         0.705         0.701         0.717         0.716         0.723         0.723         0.721 | 9581         9521         9526         9537         9477         9516         9468         9493         9517         9511         9525         9588           986         1046         1041         1030         1090         1051         1099         1074         1050         1056         1042         1009           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.309         0.316         0.295           0.662         0.672         0.668         0.669         0.669         0.670         0.677         0.681           0.631         0.638         0.605         0.648         0.650         0.644         0.660         0.661         0.643         0.628         0.644           0.717         0.721         0.720         0.729         0.720         0.736         0.746         0.742         0.750         0.730         0.727         0.736           0.686         0.696         0.692         0.706         0.715         0.707         0.716         0.723         0.713         0.704         0.731         0.710         0.717         0.716         0.723         0.723         0.717         0. | 9581         9521         9526         9537         9477         9516         9468         9493         9517         9511         9525         9558         9501           986         1046         1041         1030         1090         1051         1099         1074         1050         1056         1042         1009         1066           0.307         0.285         0.296         0.312         0.312         0.310         0.306         0.304         0.307         0.307         0.681         0.672           0.662         0.672         0.6684         0.6693         0.694         0.696         0.670         0.6671         0.681           0.631         0.638         0.605         0.648         0.650         0.664         0.660         0.661         0.643         0.628         0.644         0.630           0.717         0.721         0.720         0.729         0.720         0.736         0.746         0.742         0.750         0.730         0.727         0.736         0.749           0.729         0.729         0.720         0.736         0.746         0.742         0.747         0.741         0.713         0.714         0.750         0.745         0 | 9581 9521 9526 9537 9477 9516 9468 9493 9517 9511 9525 9558 9501 9477 986 1046 1041 1030 1090 1051 1099 1074 1050 1056 1042 1009 1066 1090 0.307 0.285 0.296 0.312 0.312 0.310 0.306 0.304 0.307 0.309 0.316 0.295 0.298 0.298 0.662 0.672 0.663 0.678 0.672 0.684 0.693 0.694 0.696 0.670 0.677 0.681 0.672 0.694 0.631 0.638 0.605 0.648 0.650 0.634 0.660 0.661 0.645 0.643 0.643 0.648 0.660 0.661 0.645 0.643 0.643 0.644 0.630 0.649 0.717 0.721 0.720 0.729 0.720 0.736 0.746 0.742 0.750 0.730 0.727 0.736 0.733 0.741 0.686 0.696 0.696 0.696 0.696 0.690 0.696 0.690 0.690 0.699 0.699 0.699 0.687 0.713 0.729 0.723 0.729 0.742 0.726 0.733 0.744 0.754 0.747
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Figure 4.2: Summary of Results with Emoticons Tagged as Interjection

Table 4.2 shows that, again, using a combination of feature vectors described in equation 3.1 provided the highest average *accuracy*. Forsyth's decision to tag emoticons as interjections performs better than grouping them into the cheap "UNK" category.

We then explored the use of a unique tag for emoticons. We used regular expressions to identify common emoticons and augmented our dictionary to tag recognized emoticons with "EMO."

#### **4.2.3** Two Types of Emoticons as One Part of Speech

We hypothesized that emoticons may deserve their own part of speech tag and, if so, that our dialog act classification accuracy may improve with this added information. To this point, we have seen that putting all unrecognized words into one category provides less accuracy then identifying emoticons as interjections. We decided to give emoticons a unique cheap POS tag and elected to tag them with "EMO."

Run Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Training Posts	9581	9521	9526	9537	9477	9516	9468	9493	9517	9511	9525	9558	9501	9477	9562	9519	9512	947
Test Posts	986	1046	1041	1030	1090	1051	1099	1074	1050	1056	1042	1009	1066	1090	1005	1048	1055	109
MLE performance	0.307	0.285	0.296	0.312	0.312	0.310	0.306	0.304	0.307	0.309	0.316	0.295	0.298	0.298	0.299	0.293	0.282	0.28
Actual POS Unigrams	0.662	0.672	0.663	0.678	0.672	0.684	0.693	0.694	0.696	0.670	0.677	0.681	0.672	0.694	0.689	0.677	0.681	0.68
Cheap POS Unigrams	0.656	0.665	0.630	0.661	0.664	0.659	0.673	0.679	0.669	0.675	0.655	0.663	0.659	0.661	0.669	0.662	0.658	0.66
LaPlace Actual POS 2-grams	0.717	0.721	0.720	0.729	0.720	0.736	0.746	0.742	0.750	0.730	0.727	0.736	0.733	0.741	0.732	0.736	0.735	0.74
LaPlace Cheap POS 2-grams	0.720	0.728	0.718	0.721	0.730	0.735	0.736	0.740	0.733	0.738	0.721	0.717	0.712	0.728	0.727	0.729	0.728	0.73
Actual POS Bigrams	0.729	0.723	0.729	0.742	0.726	0.733	0.744	0.754	0.747	0.741	0.731	0.745	0.727	0.734	0.738	0.736	0.741	0.74
Cheap POS Bigrams	0.732	0.736	0.726	0.729	0.731	0.742	0.747	0.747	0.749	0.751	0.726	0.721	0.727	0.735	0.735	0.740	0.734	0.73
Word/Actual-POS pair 2-grams + POS 2-grams	0.829	0.820	0.822	0.826	0.854	0.839	0.854	0.846	0.840	0.838	0.850	0.832	0.841	0.850	0.836	0.824	0.829	
Word/Cheap-POS pair 2-grams + POS 2-grams	0.831	0.825	0.831	0.819	0.846	0.846	0.853	0.834	0.839	0.832	0.841	0.834	0.834	0.839	0.822	0.823	0.826	0.82
Actual POS Trigrams	0.809	0.811	0.810	0.817	0.828	0.816	0.826	0.820	0.823	0.823	0.837	0.813	0.821	0.836	0.823	0.811	0.819	
Cheap POS Trigrams	0.815	0.802	0.802	0.811	0.831	0.825	0.835	0.809	0.809	0.816	0.827	0.814	0.823	0.823	0.809	0.807	0.816	
word 2-grams	0.822	0.823	0.810	0.822	0.849	0.821	0.850	0.823	0.835	0.823	0.840	0.826	0.832	0.837	0.821	0.819		
	0.022	0.020	0.020	0.022	0.0.0	0.022	0.000	0.020	0.000	0.020	0.0.0	0.020	0.002	0.00.	0.022	0.020	0.02	
Run Number:	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Training Posts	9554	9527	9542	9518	9492	9547	9523	9534	9491	9546	9553	9497	9496	9506	9480	9563	9498	945
Test Posts	1013	1040	1025	1049	1075	1020	1044	1033	1076	1021	1014	1070	1071	1061	1087	1004	1069	110
MLE performance	0.316	0.303	0.286	0.299	0.311	0.298	0.291	0.300	0.299	0.299	0.296	0.297	0.288	0.293	0.315	0.282	0.275	
Actual POS Unigrams	0.677	0.680	0.685	0.684	0.687	0.690	0.671	0.684	0.676	0.679	0.686	0.676	0.673	0.647	0.695	0.671	0.675	
Cheap POS Unigrams	0.652	0.664	0.667	0.669	0.661	0.690	0.674	0.666	0.656	0.656	0.671	0.674	0.663	0.641	0.680	0.650	0.665	0.66
LaPlace Actual POS 2-grams	0.735	0.721	0.738	0.735	0.730	0.745	0.725	0.733	0.724	0.728	0.732	0.727	0.725	0.715	0.739	0.735		
LaPlace Cheap POS 2-grams	0.724	0.724	0.737	0.727	0.727	0.751	0.723	0.737	0.723	0.725	0.732	0.734	0.723	0.716	0.741	0.723	0.720	0.72
Actual POS Bigrams	0.724	0.729	0.734	0.741	0.725	0.750	0.717	0.724	0.741	0.738	0.735	0.734	0.727	0.710	0.741	0.723	0.731	
Cheap POS Bigrams	0.735	0.729	0.735	0.741	0.723	0.755	0.731	0.724	0.741	0.742	0.736	0.750	0.727	0.730	0.756	0.734	0.726	0.72
	0.735	0.736	0.735	0.745	0.731	0.755	0.730	0.736	0.730	0.742	0.736	0.750	0.727	0.725	0.750	0.729	0.746	0.72
Word/Actual BOS pair 2 grams + BOS 2 grams		0.047	0.037				0.832	0.836	0.836	0.832	0.848	0.822	0.816	0.835	0.838	0.843	0.841	
		0.035	0.020						0.030					0.033	0.030	0.043		
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822	0.835	0.839	0.830	0.833	0.847			0.010	0.000		0 000		0.007	0.004		0.010	
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams	<b>0.822</b> 0.819	0.825	0.825	0.824	0.815	0.845	0.812	0.817	0.819	0.820	0.831	0.826	0.796	0.807	0.834	0.824	0.816	
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams Cheap POS Trigrams	0.822 0.819 0.813	0.825 0.809	0.825 0.821	0.824 0.822	0.815 0.817	0.845 0.844	0.812 0.816	0.817 0.823	0.824	0.819	0.832	0.820	0.796	0.814	0.835	0.824 0.815	0.821	0.82
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams	<b>0.822</b> 0.819	0.825	0.825	0.824	0.815	0.845	0.812	0.817								0.824		0.82
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810	0.825 0.809 0.838	0.825 0.821 0.828	0.824 0.822 0.831	0.815 0.817 0.816	0.845 0.844 0.835	0.812 0.816 0.823	0.817 0.823 0.826	0.824 0.828	0.819 0.829	0.832 0.835	0.820 0.816	0.796 0.810	0.814 0.825	0.835	0.824 0.815 0.829	0.821 0.833	0.82
Cheap POS Trigrams word 2-grams Run Number:	0.822 0.819 0.813 0.810	0.825 0.809 0.838	0.825 0.821 0.828	0.824 0.822 0.831	0.815 0.817 0.816	0.845 0.844 0.835	0.812 0.816 0.823	0.817 0.823 0.826	0.824 0.828 <b>45</b>	0.819 0.829	0.832 0.835	0.820 0.816	0.796 0.810 <b>49</b>	0.814 0.825 <b>50</b>	0.835	0.824 0.815 0.829	0.821 0.833 <b>Max</b>	0.82 0.84 Min
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513	0.825 0.809 0.838 <b>38</b> 9560	0.825 0.821 0.828 39 9528	0.824 0.822 0.831 <b>40</b> 9484	0.815 0.817 0.816 <b>41</b> 9548	0.845 0.844 0.835 <b>42</b> 9477	0.812 0.816 0.823 <b>43</b> 9436	0.817 0.823 0.826 <b>44</b> 9471	0.824 0.828 <b>45</b> 9495	0.819 0.829 <b>46</b> 9577	0.832 0.835 <b>47</b> 9511	0.820 0.816 <b>48</b> 9445	0.796 0.810 <b>49</b> 9485	0.814 0.825 <b>50</b> 9538	0.835	0.824 0.815 0.829 <b>Mean</b> 9513.3	0.821 0.833 <b>Max</b> 9581	0.82 0.84 Min 943
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054	0.825 0.809 0.838 38 9560 1007	0.825 0.821 0.828 39 9528 1039	0.824 0.822 0.831 <b>40</b> 9484 1083	0.815 0.817 0.816 <b>41</b> 9548 1019	0.845 0.844 0.835 <b>42</b> 9477 1090	0.812 0.816 0.823 43 9436 1131	0.817 0.823 0.826 <b>44</b> 9471 1096	0.824 0.828 <b>45</b> 9495 1072	0.819 0.829 <b>46</b> 9577 990	0.832 0.835 <b>47</b> 9511 1056	0.820 0.816 48 9445 1122	0.796 0.810 <b>49</b> 9485 1082	0.814 0.825 <b>50</b> 9538 1029	0.835	0.824 0.815 0.829 <b>Mean</b> 9513.3 1053.7	0.821 0.833 <b>Max</b> 9581 1131	0.82 0.84 Min 943
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309	0.825 0.809 0.838 38 9560 1007 0.327	0.825 0.821 0.828 39 9528 1039 0.278	0.824 0.822 0.831 <b>40</b> 9484 1083 0.302	0.815 0.817 0.816 <b>41</b> 9548 1019 0.295	0.845 0.844 0.835 <b>42</b> 9477 1090 0.303	0.812 0.816 0.823 43 9436 1131 0.304	0.817 0.823 0.826 44 9471 1096 0.302	0.824 0.828 <b>45</b> 9495 1072 0.311	0.819 0.829 <b>46</b> 9577 990 0.287	0.832 0.835 <b>47</b> 9511 1056 0.307	0.820 0.816 48 9445 1122 0.295	0.796 0.810 <b>49</b> 9485 1082 0.291	0.814 0.825 <b>50</b> 9538 1029 0.296	0.835	0.824 0.815 0.829 <b>Mean</b> 9513.3 1053.7 0.2993	0.821 0.833 <b>Max</b> 9581 1131 0.327	0.82 0.84 Min 943 98 0.27
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680	0.825 0.809 0.838 38 9560 1007 0.327 0.684	0.825 0.821 0.828 39 9528 1039 0.278 0.679	0.824 0.822 0.831 <b>40</b> 9484 1083 0.302 0.682	0.815 0.817 0.816 <b>41</b> 9548 1019 0.295 0.654	0.845 0.844 0.835 <b>42</b> 9477 1090 0.303 0.701	0.812 0.816 0.823 43 9436 1131 0.304 0.691	0.817 0.823 0.826 <b>44</b> 9471 1096 0.302 0.675	0.824 0.828 <b>45</b> 9495 1072 0.311 0.683	0.819 0.829 <b>46</b> 9577 990 0.287 0.683	0.832 0.835 <b>47</b> 9511 1056 0.307 0.676	0.820 0.816 48 9445 1122 0.295 0.688	0.796 0.810 49 9485 1082 0.291 0.658	0.814 0.825 <b>50</b> 9538 1029 0.296 0.684	0.835	0.824 0.815 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795	0.821 0.833 <b>Max</b> 9581 1131 0.327 0.701	0.82 0.84 Min 943 98 0.27 0.64
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680 0.660	0.825 0.809 0.838 38 9560 1007 0.327 0.684 0.655	0.825 0.821 0.828 39 9528 1039 0.278 0.679 0.647	0.824 0.822 0.831 <b>40</b> 9484 1083 0.302 0.682 0.654	0.815 0.817 0.816 41 9548 1019 0.295 0.654 0.632	0.845 0.844 0.835 <b>42</b> 9477 1090 0.303 0.701 0.676	0.812 0.816 0.823 43 9436 1131 0.304 0.691 0.659	0.817 0.823 0.826 44 9471 1096 0.302 0.675 0.650	0.824 0.828 45 9495 1072 0.311 0.683 0.662	0.819 0.829 46 9577 990 0.287 0.683 0.647	0.832 0.835 47 9511 1056 0.307 0.676 0.653	0.820 0.816 48 9445 1122 0.295 0.688 0.652	0.796 0.810 49 9485 1082 0.291 0.658 0.649	0.814 0.825 <b>50</b> 9538 1029 0.296 0.684 0.680	0.835	0.824 0.815 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6613	0.821 0.833 Max 9581 1131 0.327 0.701 0.690	0.82 0.84 Min 943 98 0.27 0.64 0.63
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680 0.660 0.733	0.825 0.809 0.838 38 9560 1007 0.327 0.684 0.655 0.737	0.825 0.821 0.828 39 9528 1039 0.278 0.679 0.647 0.726	0.824 0.822 0.831 40 9484 1083 0.302 0.682 0.654 0.733	0.815 0.817 0.816 41 9548 1019 0.295 0.654 0.632 0.714	0.845 0.844 0.835 42 9477 1090 0.303 0.701 0.676 0.760	0.812 0.816 0.823 43 9436 1131 0.304 0.691 0.659 0.730	0.817 0.823 0.826 44 9471 1096 0.302 0.675 0.650 0.727	0.824 0.828 45 9495 1072 0.311 0.683 0.662 0.737	0.819 0.829 46 9577 990 0.287 0.683 0.647 0.713	0.832 0.835 47 9511 1056 0.307 0.676 0.653 0.737	0.820 0.816 48 9445 1122 0.295 0.688 0.652 0.744	0.796 0.810 49 9485 1082 0.291 0.658 0.649 0.704	0.814 0.825 <b>50</b> 9538 1029 0.296 0.684 0.680 0.733	0.835	0.824 0.815 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6613 0.7315	0.821 0.833 <b>Max</b> 9581 1131 0.327 0.701 0.690 0.760	0.82 0.84 Min 943 98 0.27 0.64 0.63 0.70
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680 0.660 0.733 0.713	0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725	0.825 0.821 0.828 39 9528 1039 0.278 0.679 0.647 0.726	0.824 0.822 0.831 40 9484 1083 0.302 0.682 0.654 0.733 0.719	0.815 0.817 0.816 41 9548 1019 0.295 0.654 0.632 0.714 0.711	0.845 0.844 0.835 42 9477 1090 0.303 0.701 0.676 0.760 0.750	0.812 0.816 0.823 43 9436 1131 0.304 0.691 0.659 0.730	0.817 0.823 0.826 44 9471 1096 0.302 0.675 0.650 0.727 0.713	0.824 0.828 45 9495 1072 0.311 0.683 0.662 0.737 0.729	0.819 0.829 46 9577 990 0.287 0.683 0.647 0.713 0.709	0.832 0.835 47 9511 1056 0.307 0.676 0.653 0.737 0.728	0.820 0.816 48 9445 1122 0.295 0.688 0.652 0.744 0.725	0.796 0.810 49 9485 1082 0.291 0.658 0.649 0.704	0.814 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738	0.835	0.824 0.815 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6613 0.7315	0.821 0.833 Max 9581 1131 0.327 0.701 0.690 0.760 0.751	0.82 0.84 Min 943 98 0.27 0.64 0.63 0.70
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680 0.660 0.733 0.713 0.741	0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725 0.749	0.825 0.821 0.828 39 9528 1039 0.278 0.679 0.647 0.726 0.721	0.824 0.822 0.831 40 9484 1083 0.302 0.682 0.654 0.733 0.719 0.741	0.815 0.817 0.816 41 9548 1019 0.295 0.654 0.632 0.714 0.711	0.845 0.844 0.835 42 9477 1090 0.303 0.701 0.676 0.760 0.750 0.761	0.812 0.816 0.823 9436 1131 0.304 0.691 0.730 0.734 0.744	0.817 0.823 0.826 44 9471 1096 0.302 0.675 0.650 0.727 0.713	0.824 0.828 45 9495 1072 0.311 0.683 0.662 0.737 0.729 0.735	0.819 0.829 46 9577 990 0.287 0.683 0.647 0.713 0.709	0.832 0.835 47 9511 1056 0.307 0.676 0.653 0.737 0.728 0.750	0.820 0.816 48 9445 1122 0.295 0.688 0.652 0.744 0.725	0.796 0.810 9485 1082 0.291 0.658 0.649 0.704 0.707 0.712	0.814 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738	0.835	0.824 0.815 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6613 0.7315 0.7267	0.821 0.833 Max 9581 1131 0.327 0.701 0.690 0.760 0.751 0.761	0.82 0.84 Min 943 98 0.27 0.64 0.63 0.70 0.70
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680 0.660 0.733 0.713 0.741 0.723	0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725 0.749	0.825 0.821 0.828 9528 1039 0.278 0.679 0.647 0.726 0.721 0.723 0.729	0.824 0.822 0.831 9484 1083 0.302 0.682 0.654 0.733 0.719 0.741 0.723	0.815 0.817 0.816 41 9548 1019 0.295 0.654 0.632 0.714 0.711 0.736 0.723	0.845 0.844 0.835 42 9477 1090 0.303 0.701 0.676 0.750 0.750 0.761 0.758	0.812 0.816 0.823 43 9436 1131 0.304 0.691 0.659 0.730 0.734 0.744	0.817 0.823 0.826 44 9471 1096 0.302 0.675 0.650 0.727 0.713 0.719 0.720	0.824 0.828 9495 1072 0.311 0.683 0.662 0.737 0.729 0.735	0.819 0.829 46 9577 990 0.287 0.683 0.647 0.713 0.709 0.728	0.832 0.835 47 9511 1056 0.307 0.676 0.653 0.737 0.728 0.750 0.742	0.820 0.816 48 9445 1122 0.295 0.688 0.652 0.744 0.725 0.740 0.730	0.796 0.810 9485 1082 0.291 0.658 0.649 0.704 0.707 0.712	0.814 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738 0.733	0.835	0.824 0.815 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6613 0.7315 0.7267 0.7359	0.821 0.833 <b>Max</b> 9581 1131 0.327 0.701 0.690 0.760 0.751 0.751	0.82 0.84 Min 943 98 0.27 0.64 0.63 0.70 0.70
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680 0.660 0.733 0.713 0.741 0.723 0.832	0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725 0.749 0.742	0.825 0.821 0.828 39 9528 1039 0.278 0.679 0.647 0.726 0.721 0.723 0.729 0.838	0.824 0.822 0.831 9484 1083 0.302 0.682 0.654 0.733 0.719 0.741 0.723 <b>0.837</b>	0.815 0.817 0.816 41 9548 1019 0.295 0.654 0.632 0.714 0.711 0.736 0.723 0.799	0.845 0.844 0.835 42 9477 1090 0.303 0.701 0.676 0.760 0.750 0.761 0.758 0.839	0.812 0.816 0.823 <b>43</b> 9436 1131 0.304 0.691 0.659 0.730 0.734 0.744 0.737 <b>0.848</b>	0.817 0.823 0.826 44 9471 1096 0.302 0.675 0.650 0.727 0.713 0.719 0.720 0.829	0.824 0.828 9495 1072 0.311 0.683 0.662 0.737 0.729 0.735 0.735 0.838	0.819 0.829 46 9577 990 0.287 0.683 0.647 0.713 0.709 0.728 0.707	0.832 0.835 9511 1056 0.307 0.676 0.653 0.737 0.728 0.750 0.742 0.820	0.820 0.816 48 9445 1122 0.295 0.688 0.652 0.744 0.725 0.740 0.730 <b>0.834</b>	0.796 0.810 49 9485 1082 0.291 0.658 0.649 0.704 0.707 0.712 0.714 0.821	0.814 0.825 9538 1029 0.296 0.684 0.680 0.733 0.738 0.733 0.732 <b>0.831</b>	0.835	0.824 0.815 0.829 Mean 9513.3 1053.7 0.2993 0.66795 0.6613 0.7315 0.7267 0.7359 0.7347	0.821 0.833 Max 9581 1131 0.327 0.701 0.690 0.760 0.751 0.761 0.758 0.854	0.82 0.84 Min 943 0.27 0.64 0.63 0.70 0.71 0.70 <b>0.79</b>
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680 0.733 0.741 0.723 0.832 0.831	0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725 0.749 0.742 0.831	0.825 0.821 0.828 39 9528 1039 0.278 0.679 0.647 0.726 0.721 0.723 0.729 0.838	0.824 0.822 0.831 40 9484 1083 0.302 0.682 0.654 0.733 0.719 0.741 0.723 0.837	0.815 0.817 0.816 41 9548 1019 0.295 0.654 0.632 0.714 0.711 0.736 0.723 0.799	0.845 0.844 0.835 42 9477 1090 0.303 0.701 0.676 0.760 0.750 0.761 0.758 0.839 0.835	0.812 0.816 0.823 43 9436 1131 0.304 0.659 0.730 0.734 0.744 0.737 0.848 0.831	0.817 0.823 0.826 44 9471 1096 0.302 0.675 0.650 0.727 0.713 0.719 0.720 0.829 0.828	0.824 0.828 9495 1072 0.311 0.683 0.662 0.737 0.729 0.735 0.735 0.838 0.833	0.819 0.829 46 9577 990 0.287 0.683 0.647 0.713 0.709 0.728 0.707 0.829 0.823	0.832 0.835 9511 1056 0.307 0.676 0.653 0.737 0.728 0.750 0.742 0.820 0.816	0.820 0.816 48 9445 1122 0.295 0.688 0.652 0.744 0.725 0.740 0.730 0.834 0.831	0.796 0.810 49 9485 1082 0.291 0.658 0.649 0.704 0.707 0.712 0.714 0.821 0.823	0.814 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738 0.733 0.732 0.831 0.828	0.835	0.824 0.815 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6613 0.7315 0.7267 0.7359 0.7347 0.8356 0.8323	0.821 0.833 9581 1131 0.327 0.701 0.690 0.760 0.751 0.751 0.758 0.854	0.82 0.84 Min 943 98 0.27 0.64 0.70 0.70 0.70 0.79 0.80
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680 0.660 0.733 0.741 0.723 0.832 0.831 0.807	0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725 0.749 0.742 0.831 0.830	0.825 0.821 0.828 39 9528 1039 0.278 0.679 0.647 0.726 0.721 0.723 0.729 0.838 0.842	0.824 0.822 0.831 40 9484 1083 0.302 0.682 0.654 0.733 0.719 0.741 0.723 0.837 0.830 0.813	0.815 0.817 0.816 41 9548 1019 0.295 0.654 0.632 0.714 0.711 0.736 0.723 0.799 0.807	0.845 0.844 0.835 42 9477 1090 0.303 0.701 0.676 0.750 0.751 0.758 0.839 0.835 0.826	0.812 0.816 0.823 43 9436 1131 0.304 0.659 0.730 0.734 0.744 0.737 0.848 0.831	0.817 0.823 0.826 44 9471 1096 0.302 0.675 0.650 0.727 0.713 0.719 0.720 0.829 0.828 0.813	0.824 0.828 45 9495 1072 0.311 0.683 0.662 0.737 0.729 0.735 0.838 0.833 0.828	0.819 0.829 46 9577 990 0.287 0.683 0.647 0.713 0.709 0.728 0.709 0.829 0.823	0.832 0.835 47 9511 1056 0.307 0.676 0.653 0.737 0.728 0.750 0.742 0.820 0.816	0.820 0.816 48 9445 1122 0.295 0.688 0.652 0.744 0.725 0.740 0.730 0.834 0.831	0.796 0.810 49 9485 1082 0.291 0.658 0.649 0.704 0.707 0.712 0.714 0.821 0.823 0.806	0.814 0.825 9538 1029 0.296 0.684 0.680 0.733 0.738 0.732 0.831 0.828	0.835	0.824 0.815 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6613 0.7315 0.7267 0.7359 0.7349 0.8356 0.8323 0.8196	0.821 0.833 9581 1131 0.327 0.701 0.690 0.760 0.751 0.758 0.854 0.853	0.82 0.84 Min 943 0.27 0.64 0.63 0.70 0.70 0.70 0.70 0.70 0.70 0.70
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.813 0.810 37 9513 1054 0.309 0.680 0.733 0.741 0.723 0.832 0.831	0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725 0.749 0.742 0.831	0.825 0.821 0.828 39 9528 1039 0.278 0.679 0.647 0.726 0.721 0.723 0.729 0.838	0.824 0.822 0.831 40 9484 1083 0.302 0.682 0.654 0.733 0.719 0.741 0.723 0.837	0.815 0.817 0.816 41 9548 1019 0.295 0.654 0.632 0.714 0.711 0.736 0.723 0.799	0.845 0.844 0.835 42 9477 1090 0.303 0.701 0.676 0.760 0.750 0.761 0.758 0.839 0.835	0.812 0.816 0.823 43 9436 1131 0.304 0.659 0.730 0.734 0.744 0.737 0.848 0.831	0.817 0.823 0.826 44 9471 1096 0.302 0.675 0.650 0.727 0.713 0.719 0.720 0.829 0.828	0.824 0.828 9495 1072 0.311 0.683 0.662 0.737 0.729 0.735 0.735 0.838 0.833	0.819 0.829 46 9577 990 0.287 0.683 0.647 0.713 0.709 0.728 0.707 0.829 0.823	0.832 0.835 9511 1056 0.307 0.676 0.653 0.737 0.728 0.750 0.742 0.820 0.816	0.820 0.816 48 9445 1122 0.295 0.688 0.652 0.744 0.725 0.740 0.730 0.834 0.831	0.796 0.810 49 9485 1082 0.291 0.658 0.649 0.704 0.707 0.712 0.714 0.821 0.823	0.814 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738 0.733 0.732 0.831 0.828	0.835	0.824 0.815 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6613 0.7315 0.7267 0.7359 0.7347 0.8356 0.8323	0.821 0.833 9581 1131 0.327 0.701 0.690 0.760 0.751 0.758 0.854 0.853 0.844	0.82 0.84 Minn 943 943 0.22 0.64 0.77 0.77 0.77 0.78 0.88

Figure 4.3: Summary of Results with Emoticons Tagged as "EMO"

As can be seen in Figure 4.3, we improved the accuracy of our classifier slightly. This suggests that emotions may serve better as this new part of speech rather than as interjections. Examining the emotions in use today, there appear to be two distinct types, those that are made of combinations of punctuation ("smileys" such as ":)") and those that are acronyms like "lol" for "laugh[ing] out loud."

# **4.2.4** Two Types of Emoticon Tags

In order to determine if our dialog act classifier performance would improve if we recognized the different types of emoticons as two different parts of speech, we augmented the POS dictionary as such. Emoticons based on acronyms were assigned the part of speech tag of "EMO2."

Run Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Training Posts	9581	9521	9526	9537	9477	9516	9468	9493	9517	9511	9525	9558	9501	9477	9562	9519	9512	9473
Test Posts	986	1046	1041	1030	1090	1051	1099	1074	1050	1056	1042	1009	1066	1090	1005	1048	1055	1094
MLE performance	0.307	0.285	0.296	0.312	0.312	0.310	0.306	0.304	0.307	0.309	0.316	0.295	0.298	0.298	0.299	0.293	0.282	0.283
Actual POS Unigrams	0.662	0.672	0.663	0.678	0.672	0.684	0.693	0.694	0.696	0.670	0.677	0.681	0.672	0.694	0.689	0.677	0.681	0.683
Cheap POS Unigrams	0.656	0.666	0.629	0.660	0.663	0.662	0.674	0.679	0.670	0.675	0.654	0.664	0.659	0.661	0.669	0.662	0.658	0.666
LaPlace Actual POS 2-grams	0.717	0.721	0.720	0.729	0.720	0.736	0.746	0.742	0.750	0.730	0.727	0.736	0.733	0.741	0.732	0.736	0.735	0.740
LaPlace Cheap POS 2-grams	0.720	0.728	0.719	0.722	0.730	0.735	0.735	0.740	0.731	0.736	0.721	0.720	0.711	0.728	0.726		0.729	0.730
Actual POS Bigrams	0.729	0.723	0.729	0.742	0.726	0.733	0.744	0.754	0.747	0.741	0.731	0.745	0.727	0.734	0.738	0.736		0.744
Cheap POS Bigrams	0.735	0.736	0.723	0.730	0.732	0.739	0.749	0.745	0.747	0.749	0.726	0.721	0.727	0.736	0.733	0.742	-	0.733
Word/Actual-POS pair 2-grams + POS 2-grams	0.829	0.820	0.822	0.826	0.854	0.839	0.854	0.846	0.840	0.838	0.850	0.832	0.841	0.850	0.836	-	0.829	0.836
Word/Cheap-POS pair 2-grams + POS 2-grams	0.833	0.827	0.828	0.821	0.846	0.840	0.854	0.837	0.839	0.833	0.841	0.836	0.833	0.839	0.824	0.823	0.827	0.824
Actual POS Trigrams	0.809	0.811	0.810	0.817	0.828	0.816	0.826	0.820	0.823	0.823	0.837	0.813	0.821	0.836	0.823		0.819	0.820
Cheap POS Trigrams	0.816	0.806	0.798	0.811	0.831	0.821	0.834	0.808	0.809	0.817	0.825	0.818	0.820	0.822	0.812	0.807	0.817	0.813
word 2-grams	0.822	0.823	0.810	0.822	0.849	0.821	0.850	0.823	0.835	0.823	0.840	0.826	0.832	0.837	0.821		0.824	0.821
word 2 grams	0.022	0.020	0.010	0.022	0.040	0.021	0.000	0.020	0.000	0.020	0.040	0.020	0.002	0.001	0.021	0.010	0.024	0.02.
Run Number:	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Training Posts	9554	9527	9542	9518	9492	9547	9523	9534	9491	9546	9553	9497	9496	9506	9480	9563	9498	9458
Test Posts	1013	1040	1025	1049	1075	1020	1044	1033	1076	1021	1014	1070	1071	1061	1087	1004	1069	1109
MLE performance	0.316	0.303	0.286	0.299	0.311	0.298	0.291	0.300	0.299	0.299	0.296	0.297	0.288	0.293	0.315	0.282		0.298
Actual POS Unigrams	0.677	0.680	0.685	0.684	0.687	0.690	0.671	0.684	0.676		0.686	0.676	0.673	0.647	0.695		0.675	0.682
Cheap POS Unigrams	0.654	0.665	0.666	0.670	0.662	0.691	0.673	0.666	0.656	0.657	0.670	0.672	0.663	0.641	0.681	0.650		0.665
LaPlace Actual POS 2-grams	0.735	0.721	0.738	0.735	0.730	0.745	0.725	0.733	0.724	0.728	0.732	0.727	0.725	0.715	0.739		0.728	0.738
LaPlace Cheap POS 2-grams	0.724	0.723	0.737	0.725	0.728	0.750	0.717	0.736	0.722	0.734	0.731	0.735	0.721	0.716	0.741		0.733	0.720
Actual POS Bigrams	0.724	0.729	0.734	0.741	0.725	0.750	0.731	0.724	0.741	0.738	0.735	0.739	0.721	0.730	0.741		0.728	0.739
Cheap POS Bigrams	0.736	0.725	0.735	0.741	0.723	0.756	0.731	0.724	0.730	0.742	0.737	0.750	0.724	0.730	0.741	0.734		0.733
<u> </u>		0.730	0.837	0.845	0.832	0.851	0.723	0.832	0.730	0.836	0.845	0.836	0.724	0.723	0.700	0.839	-	0.84
				0.040		0.848	0.832	0.835	0.836	0.835	0.850	0.822	0.815	0.832	0.837	0.843		0.837
	0.831			0 830	U 831						0.030	0.022					0.043	
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822	0.832	0.838	0.830	0.831						0 021	0 026					0 016	000
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams	<b>0.822</b> 0.819	<b>0.832</b> 0.825	<b>0.838</b> 0.825	0.824	0.815	0.845	0.812	0.817	0.819	0.820	0.831	0.826	0.796	0.807	0.834	0.824		
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams Cheap POS Trigrams	0.822 0.819 0.814	0.832 0.825 0.809	0.838 0.825 0.820	0.824 0.816	0.815 0.813	0.845 0.845	0.812 0.817	0.817 0.821	0.819 0.823	0.820 0.821	0.832	0.819	0.796 0.795	0.807 0.813	0.834 0.837	0.824 0.816	0.822	0.820
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams	<b>0.822</b> 0.819	<b>0.832</b> 0.825	<b>0.838</b> 0.825	0.824	0.815	0.845	0.812	0.817	0.819	0.820			0.796	0.807	0.834	0.824 0.816		0.820
Word/Cheap-POS pair 2-grams + POS 2-grams Actual POS Trigrams Cheap POS Trigrams word 2-grams	0.822 0.819 0.814 0.810	0.832 0.825 0.809 0.838	0.838 0.825 0.820 0.828	0.824 0.816 0.831	0.815 0.813 0.816	0.845 0.845 0.835	0.812 0.817 0.823	0.817 0.821 0.826	0.819 0.823 0.828	0.820 0.821 0.829	0.832 0.835	0.819 0.816	0.796 0.795 0.810	0.807 0.813 0.825	0.834 0.837	0.824 0.816 0.829	0.822 0.833	0.820
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810	0.832 0.825 0.809 0.838	0.838 0.825 0.820 0.828	0.824 0.816 0.831	0.815 0.813 0.816	0.845 0.845 0.835	0.812 0.817 0.823	0.817 0.821 0.826	0.819 0.823 0.828 <b>45</b>	0.820 0.821 0.829	0.832 0.835	0.819 0.816 48	0.796 0.795 0.810	0.807 0.813 0.825	0.834 0.837	0.824 0.816 0.829	0.822 0.833 <b>Max</b>	0.820 0.841 Min
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513	0.832 0.825 0.809 0.838 38 9560	0.838 0.825 0.820 0.828 39 9528	0.824 0.816 0.831 <b>40</b> 9484	0.815 0.813 0.816 <b>41</b> 9548	0.845 0.845 0.835 42 9477	0.812 0.817 0.823 43 9436	0.817 0.821 0.826 <b>44</b> 9471	0.819 0.823 0.828 <b>45</b> 9495	0.820 0.821 0.829 <b>46</b> 9577	0.832 0.835 <b>47</b> 9511	0.819 0.816 <b>48</b> 9445	0.796 0.795 0.810 <b>49</b> 9485	0.807 0.813 0.825 <b>50</b> 9538	0.834 0.837	0.824 0.816 0.829 <b>Mean</b> 9513.3	0.822 0.833 <b>Max</b> 9577	0.820 0.841 Min 9436
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054	0.832 0.825 0.809 0.838 38 9560 1007	0.838 0.825 0.820 0.828 39 9528 1039	0.824 0.816 0.831 <b>40</b> 9484 1083	0.815 0.813 0.816 <b>41</b> 9548 1019	0.845 0.845 0.835 <b>42</b> 9477 1090	0.812 0.817 0.823 43 9436 1131	0.817 0.821 0.826 <b>44</b> 9471 1096	0.819 0.823 0.828 <b>45</b> 9495 1072	0.820 0.821 0.829 <b>46</b> 9577 990	0.832 0.835 <b>47</b> 9511 1056	0.819 0.816 <b>48</b> 9445 1122	0.796 0.795 0.810 <b>49</b> 9485 1082	0.807 0.813 0.825 <b>50</b> 9538 1029	0.834 0.837	0.824 0.816 0.829 <b>Mean</b> 9513.3 1053.7	0.822 0.833 <b>Max</b> 9577 1131	0.820 0.841 Min 9436 990
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054 0.309	0.832 0.825 0.809 0.838 38 9560 1007 0.327	0.838 0.825 0.820 0.828 39 9528 1039 0.278	0.824 0.816 0.831 <b>40</b> 9484 1083 0.302	0.815 0.813 0.816 41 9548 1019 0.295	0.845 0.845 0.835 42 9477 1090 0.303	0.812 0.817 0.823 43 9436 1131 0.304	0.817 0.821 0.826 44 9471 1096 0.302	0.819 0.823 0.828 <b>45</b> 9495 1072 0.311	0.820 0.821 0.829 46 9577 990 0.287	0.832 0.835 <b>47</b> 9511 1056 0.307	0.819 0.816 48 9445 1122 0.295	0.796 0.795 0.810 <b>49</b> 9485 1082 0.291	0.807 0.813 0.825 <b>50</b> 9538 1029 0.296	0.834 0.837	0.824 0.816 0.829 <b>Mean</b> 9513.3 1053.7 0.2993	0.822 0.833 <b>Max</b> 9577 1131 0.327	0.820 0.843 Min 9436 990 0.275
Cheap POS Trigrams word 2-grams  Run Number: Training Posts Test Posts MLE performance Actual POS Unigrams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.680	0.832 0.825 0.809 0.838 38 9560 1007 0.327 0.684	0.838 0.825 0.820 0.828 39 9528 1039 0.278 0.679	0.824 0.816 0.831 <b>40</b> 9484 1083 0.302 0.682	0.815 0.813 0.816 41 9548 1019 0.295 0.654	0.845 0.845 0.835 <b>42</b> 9477 1090 0.303 0.701	0.812 0.817 0.823 43 9436 1131 0.304 0.691	0.817 0.821 0.826 <b>44</b> 9471 1096 0.302 0.675	0.819 0.823 0.828 <b>45</b> 9495 1072 0.311 0.683	0.820 0.821 0.829 46 9577 990 0.287 0.683	0.832 0.835 <b>47</b> 9511 1056 0.307 0.676	0.819 0.816 48 9445 1122 0.295 0.688	0.796 0.795 0.810 <b>49</b> 9485 1082 0.291 0.658	0.807 0.813 0.825 <b>50</b> 9538 1029 0.296 0.684	0.834 0.837	0.824 0.816 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795	0.822 0.833 <b>Max</b> 9577 1131 0.327 0.701	0.820 0.842 Min 9436 990 0.275 0.642
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.680 0.659	0.832 0.825 0.809 0.838 38 9560 1007 0.327 0.684 0.655	0.838 0.825 0.820 0.828 39 9528 1039 0.278 0.679 0.649	0.824 0.816 0.831 40 9484 1083 0.302 0.682 0.656	0.815 0.813 0.816 41 9548 1019 0.295 0.654 0.631	0.845 0.845 0.835 42 9477 1090 0.303 0.701 0.678	0.812 0.817 0.823 43 9436 1131 0.304 0.691 0.658	0.817 0.821 0.826 44 9471 1096 0.302 0.675 0.649	0.819 0.823 0.828 <b>45</b> 9495 1072 0.311 0.683 0.664	0.820 0.821 0.829 <b>46</b> 9577 990 0.287 0.683 0.646	0.832 0.835 47 9511 1056 0.307 0.676 0.654	0.819 0.816 48 9445 1122 0.295 0.688 0.651	0.796 0.795 0.810 49 9485 1082 0.291 0.658 0.649	0.807 0.813 0.825 <b>50</b> 9538 1029 0.296 0.684 0.680	0.834 0.837	0.824 0.816 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6616	0.822 0.833 <b>Max</b> 9577 1131 0.327 0.701 0.691	0.820 0.842 Min 9436 990 0.275 0.644 0.629
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.680 0.659 0.733	0.832 0.825 0.809 0.838 38 9560 1007 0.327 0.684 0.655 0.737	0.838 0.825 0.820 0.828 39 9528 1039 0.278 0.679 0.649 0.726	0.824 0.816 0.831 40 9484 1083 0.302 0.682 0.656 0.733	0.815 0.813 0.816 41 9548 1019 0.295 0.654 0.631 0.714	0.845 0.845 0.835 42 9477 1090 0.303 0.701 0.678 0.760	0.812 0.817 0.823 43 9436 1131 0.304 0.691 0.658 0.730	0.817 0.821 0.826 44 9471 1096 0.302 0.675 0.649 0.727	0.819 0.823 0.828 <b>45</b> 9495 1072 0.311 0.683 0.664 0.737	0.820 0.821 0.829 46 9577 990 0.287 0.683 0.646 0.713	0.832 0.835 47 9511 1056 0.307 0.676 0.654 0.737	0.819 0.816 48 9445 1122 0.295 0.688 0.651 0.744	0.796 0.795 0.810 49 9485 1082 0.291 0.658 0.649 0.704	0.807 0.813 0.825 <b>50</b> 9538 1029 0.296 0.684 0.680 0.733	0.834 0.837	0.824 0.816 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6616 0.7315	0.822 0.833 <b>Max</b> 9577 1131 0.327 0.701 0.691 0.760	0.820 0.841 Min 9436 990 0.275 0.647 0.629
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.680 0.659 0.733 0.713	0.832 0.825 0.809 0.838 38 9560 1007 0.327 0.684 0.655 0.737 0.725	0.838 0.825 0.820 0.828 39 9528 1039 0.278 0.679 0.649 0.726	0.824 0.816 0.831 40 9484 1083 0.302 0.682 0.656 0.733 0.718	0.815 0.813 0.816 41 9548 1019 0.295 0.654 0.631 0.714	0.845 0.845 0.835 42 9477 1090 0.303 0.701 0.678 0.760 0.750	0.812 0.817 0.823 43 9436 1131 0.304 0.691 0.658 0.730 0.734	0.817 0.821 0.826 44 9471 1096 0.302 0.675 0.649 0.727 0.712	0.819 0.823 0.828 45 9495 1072 0.311 0.683 0.664 0.737 0.729	0.820 0.821 0.829 46 9577 990 0.287 0.683 0.646 0.713 0.709	0.832 0.835 47 9511 1056 0.307 0.676 0.654 0.737 0.728	0.819 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.725	0.796 0.795 0.810 49 9485 1082 0.291 0.658 0.649 0.704 0.706	0.807 0.813 0.825 <b>50</b> 9538 1029 0.296 0.684 0.680 0.733 0.738	0.834 0.837	0.824 0.816 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6616 0.7315 0.7265	0.822 0.833 <b>Max</b> 9577 1131 0.327 0.701 0.691 0.760 0.750	0.820 0.843 Min 9436 990 0.275 0.64 0.625 0.704
Word/Cheap-POS pair 2-grams + POS 2-grams  Actual POS Trigrams Cheap POS Trigrams word 2-grams  Run Number: Training Posts Test Posts MLE performance Actual POS Unigrams Cheap POS Unigrams LaPlace Actual POS 2-grams LaPlace Cheap POS 2-grams Actual POS Bigrams Actual POS Bigrams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.680 0.659 0.733 0.713 0.741	0.832 0.825 0.809 0.838 38 9560 1007 0.327 0.684 0.655 0.737 0.725	0.838 0.825 0.820 0.828 39 9528 1039 0.278 0.679 0.649 0.726 0.720 0.723	0.824 0.816 0.831 40 9484 1083 0.302 0.682 0.656 0.733 0.718 0.741	0.815 0.813 0.816 41 9548 1019 0.295 0.654 0.631 0.714 0.710 0.736	0.845 0.845 0.835 42 9477 1090 0.303 0.701 0.678 0.760 0.750 0.761	0.812 0.817 0.823 43 9436 1131 0.304 0.691 0.658 0.730 0.734	0.817 0.821 0.826 44 9471 1096 0.302 0.675 0.649 0.727 0.712 0.719	0.819 0.823 0.828 45 9495 1072 0.311 0.683 0.664 0.737 0.729 0.735	0.820 0.821 0.829 46 9577 990 0.287 0.683 0.646 0.713 0.709	0.832 0.835 47 9511 1056 0.307 0.676 0.654 0.737 0.728 0.750	0.819 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.725 0.740	0.796 0.795 0.810 <b>49</b> 9485 1082 0.291 0.658 0.649 0.704 0.706	0.807 0.813 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738	0.834 0.837	0.824 0.816 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6616 0.7315 0.7265 0.7359	0.822 0.833 9577 1131 0.327 0.701 0.691 0.750 0.750	0.820 0.841 Min 9436 990 0.275 0.647 0.704 0.704 0.712
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.680 0.659 0.733 0.713 0.741 0.724	0.832 0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725 0.749	0.838 0.825 0.820 0.828 39 9528 1039 0.278 0.679 0.649 0.726 0.720 0.723 0.729	0.824 0.816 0.831 40 9484 1083 0.302 0.682 0.656 0.733 0.718 0.741 0.720	0.815 0.813 0.816 <b>41</b> 9548 1019 0.295 0.654 0.631 0.714 0.710 0.736 0.724	0.845 0.845 0.835 42 9477 1090 0.303 0.701 0.678 0.760 0.750 0.751	0.812 0.817 0.823 <b>43</b> 9436 1131 0.304 0.691 0.658 0.730 0.734 0.744	0.817 0.821 0.826 44 9471 1096 0.302 0.675 0.649 0.727 0.712 0.719 0.719	0.819 0.823 0.828 45 9495 1072 0.311 0.683 0.664 0.737 0.729 0.735	0.820 0.821 0.829 46 9577 990 0.287 0.683 0.646 0.713 0.709 0.728	0.832 0.835 9511 1056 0.307 0.676 0.654 0.737 0.728 0.750 0.743	0.819 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.725 0.740 0.730	0.796 0.795 0.810 <b>49</b> 9485 1082 0.291 0.658 0.649 0.704 0.706 0.712	0.807 0.813 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738 0.733	0.834 0.837	0.824 0.816 0.829 <b>Mean</b> 9513.3 1053.7 0.2993 0.6795 0.6616 0.7315 0.7265 0.7359 0.7345	0.822 0.833 <b>Max</b> 9577 1131 0.327 0.701 0.691 0.760 0.750 0.761	0.820 0.842 Min 9436 990 0.275 0.647 0.706 0.706 0.712
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.680 0.659 0.733 0.713 0.741 0.724 0.832	0.832 0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725 0.749 0.743	0.838 0.825 0.820 0.828 39 9528 1039 0.278 0.679 0.726 0.720 0.723 0.729 0.838	0.824 0.816 0.831 40 9484 1083 0.302 0.682 0.656 0.733 0.718 0.741 0.720 0.837	0.815 0.813 0.816 <b>41</b> 9548 1019 0.295 0.654 0.631 0.714 0.710 0.736 0.724 <b>0.799</b>	0.845 0.845 0.835 9477 1090 0.303 0.701 0.678 0.760 0.750 0.761 0.757 <b>0.839</b>	0.812 0.817 0.823 43 9436 1131 0.304 0.691 0.658 0.730 0.734 0.744 0.736 0.848	0.817 0.821 0.826 44 9471 1096 0.302 0.675 0.649 0.727 0.712 0.719 0.719 0.829	0.819 0.823 0.828 45 9495 1072 0.311 0.683 0.664 0.737 0.729 0.735 0.735	0.820 0.821 0.829 46 9577 990 0.287 0.683 0.646 0.713 0.709 0.728 0.710 0.829	0.832 0.835 9511 1056 0.307 0.676 0.654 0.737 0.728 0.750 0.743 0.820	0.819 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.725 0.740 0.730 <b>0.834</b>	0.796 0.795 0.810 49 9485 1082 0.291 0.658 0.649 0.704 0.706 0.712 0.717 0.821	0.807 0.813 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738 0.733 0.730 0.831	0.834 0.837	0.824 0.816 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6616 0.7315 0.7265 0.7359 0.7345	0.822 0.833 <b>Max</b> 9577 1131 0.327 0.701 0.691 0.760 0.750 0.761 0.760 <b>0.854</b>	0.820 0.842 0.843 9430 990 0.275 0.642 0.706 0.706 0.712 0.710 0.796
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.680 0.659 0.733 0.741 0.724 0.832 0.831	0.832 0.825 0.809 0.838 9560 1007 0.327 0.655 0.737 0.725 0.749 0.743 0.831 0.827	0.838 0.825 0.820 0.828 39 9528 1039 0.278 0.679 0.726 0.720 0.723 0.729 0.838 0.841	0.824 0.816 0.831 40 9484 1083 0.302 0.682 0.656 0.733 0.718 0.741 0.720 0.837 0.829	0.815 0.813 0.816 41 9548 1019 0.295 0.654 0.631 0.714 0.710 0.736 0.724 0.799 0.808	0.845 0.845 0.835 42 9477 1090 0.303 0.701 0.678 0.760 0.750 0.757 0.839 0.835	0.812 0.817 0.823 43 9436 1131 0.304 0.691 0.658 0.730 0.734 0.744 0.736 0.848 0.831	0.817 0.821 0.826 44 9471 1096 0.302 0.675 0.649 0.727 0.712 0.719 0.829 0.829	0.819 0.823 0.828 45 9495 1072 0.311 0.683 0.664 0.737 0.729 0.735 0.735 0.838 0.835	0.820 0.821 0.829 46 9577 990 0.287 0.683 0.646 0.713 0.709 0.728 0.710 0.829	0.832 0.835 47 9511 1056 0.307 0.676 0.654 0.737 0.728 0.750 0.743 0.820 0.816	0.819 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.725 0.740 0.730 0.834 0.831	0.796 0.795 0.810 49 9485 1082 0.291 0.658 0.649 0.706 0.712 0.717 0.821 0.823	0.807 0.813 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738 0.733 0.730 0.831 0.826	0.834 0.837	0.824 0.816 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6616 0.7315 0.7359 0.7345 0.8356 0.8323	0.822 0.833 9577 1131 0.327 0.701 0.691 0.760 0.750 0.761 0.760 0.854	0.820 0.843 Min 9436 990 0.275 0.643 0.706 0.706 0.710 0.710 0.795
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.689 0.733 0.713 0.741 0.724 0.832 0.831 0.807	0.832 0.825 0.809 0.838 9560 1007 0.327 0.684 0.655 0.737 0.725 0.749 0.743 0.831 0.827	0.838 0.825 0.820 0.828 9528 1039 0.278 0.679 0.649 0.726 0.720 0.723 0.729 0.838 0.841 0.823	0.824 0.816 0.831 40 9484 1083 0.302 0.682 0.656 0.733 0.718 0.720 0.829 0.813	0.815 0.813 0.816 9548 1019 0.295 0.654 0.631 0.714 0.706 0.724 0.799 0.808 0.795	0.845 0.845 0.835 42 9477 1090 0.303 0.701 0.678 0.760 0.750 0.761 0.757 0.839 0.835	0.812 0.817 0.823 43 9436 1131 0.304 0.691 0.658 0.730 0.734 0.744 0.736 0.848 0.831	0.817 0.821 0.826 44 9471 1096 0.302 0.675 0.649 0.727 0.712 0.719 0.719 0.829 0.829 0.813	0.819 0.823 0.828 9495 1072 0.311 0.664 0.737 0.729 0.735 0.838 0.835	0.820 0.821 0.829 46 9577 990 0.287 0.683 0.646 0.713 0.709 0.728 0.710 0.829 0.826	0.832 0.835 47 9511 1056 0.307 0.676 0.654 0.737 0.728 0.750 0.743 0.820 0.816	0.819 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.725 0.740 0.730 0.834 0.831	0.796 0.795 0.810 49 9485 1082 0.291 0.658 0.649 0.704 0.706 0.712 0.717 0.821 0.823	0.807 0.813 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738 0.738 0.733 0.826 0.826	0.834 0.837	0.824 0.816 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6616 0.7315 0.7265 0.7359 0.7345 0.8356 0.8323 0.8196	0.822 0.833 9577 1131 0.327 0.701 0.691 0.760 0.750 0.761 0.760 0.854 0.845	9436 990 0.275 0.645 0.704 0.706 0.712 0.710 0.795 0.808
Word/Cheap-POS pair 2-grams + POS 2-grams	0.822 0.819 0.814 0.810 37 9513 1054 0.309 0.680 0.659 0.733 0.741 0.724 0.832 0.831	0.832 0.825 0.809 0.838 9560 1007 0.327 0.655 0.737 0.725 0.749 0.743 0.831 0.827	0.838 0.825 0.820 0.828 39 9528 1039 0.278 0.679 0.726 0.720 0.723 0.729 0.838 0.841	0.824 0.816 0.831 40 9484 1083 0.302 0.682 0.656 0.733 0.718 0.741 0.720 0.837 0.829	0.815 0.813 0.816 41 9548 1019 0.295 0.654 0.631 0.714 0.710 0.736 0.724 0.799 0.808	0.845 0.845 0.835 42 9477 1090 0.303 0.701 0.678 0.760 0.750 0.757 0.839 0.835	0.812 0.817 0.823 43 9436 1131 0.304 0.691 0.658 0.730 0.734 0.744 0.736 0.848 0.831	0.817 0.821 0.826 44 9471 1096 0.302 0.675 0.649 0.727 0.712 0.719 0.829 0.829	0.819 0.823 0.828 45 9495 1072 0.311 0.683 0.664 0.737 0.729 0.735 0.735 0.838 0.835	0.820 0.821 0.829 46 9577 990 0.287 0.683 0.646 0.713 0.709 0.728 0.710 0.829	0.832 0.835 47 9511 1056 0.307 0.676 0.654 0.737 0.728 0.750 0.743 0.820 0.816	0.819 0.816 48 9445 1122 0.295 0.688 0.651 0.744 0.725 0.740 0.730 0.834 0.831	0.796 0.795 0.810 49 9485 1082 0.291 0.658 0.649 0.706 0.712 0.717 0.821 0.823	0.807 0.813 0.825 50 9538 1029 0.296 0.684 0.680 0.733 0.738 0.733 0.730 0.831 0.826	0.834 0.837	0.824 0.816 0.829 Mean 9513.3 1053.7 0.2993 0.6795 0.6616 0.7315 0.7359 0.7345 0.8356 0.8323	0.822 0.833 9577 1131 0.327 0.701 0.691 0.760 0.750 0.761 0.760 0.854 0.845	0.820 0.841 Min 9436 990 0.275 0.647 0.706 0.706 0.712 0.710 0.795 0.808

Figure 4.4: Summary of Results with Emoticons Separated into Two Groups

Figure 4.4 shows a similar performance when we segregate the two emotion types. Separating the emotions into two groups based on type actually increased our classifiers performance by 0.003%. We suspect that this may indicate that the different types serve different syntactic purposes. Further analysis of this phenomenon was not completed due to time constraints.

# 4.3 Analysis

We have demonstrated that using equation 3.1 provided the best accuracy for our cheap POS method and that our method equals or improves accuracy depending on which tags are applied to emoticons as compared to Forsyth [6].

We note that classification based on word bigrams gives an overall accuracy of 82.63%, actual POS bigrams result in 73.59% and actual POS trigrams 81.96%. This suggests that sentence structure rather than content carries the dialog act signal. Cheap POS bigrams achieve an accuracy of 73.47% when all emoticons are given a common tag. Cheap POS trigrams with this tagging scheme result in an overall accuracy of 81.57%, only 0.39% less than actual POS trigrams. Our cheap POS trigrams carry the dialog act signal virtually as well as actual POS trigrams.

Appendix C contains tables showing the effects of our various POS tagging schemes. We provide the counts of each POS by dialog act type. Figure B.1 contains the counts of these tags as applied by Forsyth. Figures B.2, B.3, B.4 and B.5 show the cheap POS counts as applied by our methodology. We note the shifts in "UNK," "UH," "EMO" and "EMO2" counts according to tagging scheme as each figure's caption indicates. These experiments serve as a preliminary exploration of Harris' "Distributional Hypothesis" [25].

In order to demonstrate statistical significance in our experiments, we chose to compare the performance of word bigrams, cheap POS and actual POS for this task, we chose the Wilcoxon Signed-Rank Pair test and selected a confidence level of 99%.

# **4.3.1** Statistical Significance with Emoticons Unrecognized

Figure 4.5 displays the distributions of overall accuracies when emoticons are not recognized and are therefore tagged as "UNK." We can see overlap in the performance of our classifier using our selected feature sets.

We applied the Wilcoxon Signed-Rank Pair test between word bigrams and cheap POS results using equation 3.1 with a resulting p value of 0.0000181. There is only a remote possibility that

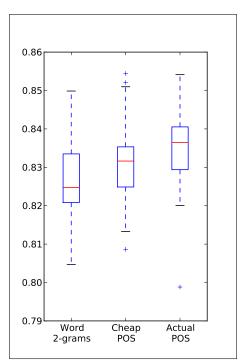


Figure 4.5: Bar Plot of Accuracies with Emoticons Unrecognized

this is a result of random chance.

Applying the same test between the cheap and actual POS results also exceeded our 99% confidence level with a p value of 0.00025. We conclude that we have strong statistical significance in our method's performance.

# 4.3.2 Statistical Significance with Emoticons Tagged as Interjections

Figure 4.6 shows the distributions of overall accuracies when we concur with Forsyth's decision to tag emoticons as interjections. The word bigrams and features using actual POS marks data show no change from the previous figure and are provided for easy reference. We see the general improvement in cheap POS feature performance as a slight upward trend.

We applied the Signed-Rank Pair test between word bigram and cheap POS performance and computed a p value of 0.0000051. We conclude statistical significance in our method.

We also applied the test between cheap POS and actual POS data with a resulting p value of 0.00017.

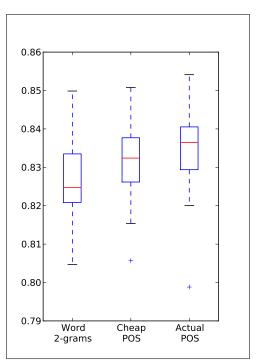


Figure 4.6: Bar Plot of Accuracies with Emoticons Tagged as Interjections

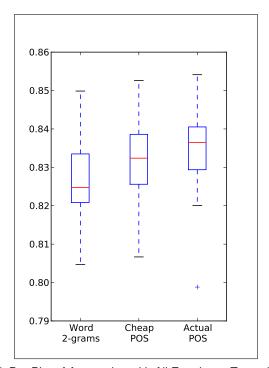


Figure 4.7: Bar Plot of Accuracies with All Emoticons Tagged as "EMO"

#### 4.3.3 Statistical Significance with Emotions Tagged with "EMO"

We find in Figure 4.7 that marking emoticons with a single, unique tag gives better results than using the interjection tag. In fact, this emoticons tagging scheme produces better average accuracy than the previous work.

We continued to use the Wilcoxon Signed-Rank Pair test with a confidence level of 99%. When we compared word bigrams with the performance of cheap POS, our p value was 0.0000013. The test resulted in a p value of 0.00191 when comparing cheap POS performance to actual POS performance.

We continue to demonstrate statistical significance.

# 4.3.4 Statistical Significance with Emoticons Tagged as Two Types

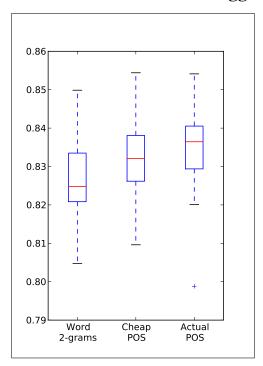


Figure 4.8: Bar Plot of Accuracies with Emoticons Tagged as "EMO" and "EMO2"

Figure 4.8 represents our final emoticon tagging scheme and shows a very slight increase in average accuracy over the previous scheme. This average also matches Forsyth's best. Significance testing, conducted as in previous experiments, gives a p value of 0.000019 in comparison of word bigrams and cheap POS. We achieved a p value of 0.00061 when testing cheap and actual POS performances.

#### **4.3.5** Dialog Act or Authorship Identification?

In order to determine that our classifier results were not influenced by the characteristics of prolific chat participants, we used Forsyth's original data to map masked user names to their screen names. We were able to attribute 9,856 posts to 1,122 individuals. We split the correlated data using 90% of the identified authors for training and the other 10% for testing. No posts from the tested authors were included in the training set. We performed testing over 10 such splits with the overall accuracies provided in Table 4.1: Note that the number of posts used

Run Number:	Mean	Max	Min
Training Posts	8828.8	9277	8653
Test Posts	1027.2	1203	579
MLE performance	0.2988	0.3310	0.2418
Actual POS Unigrams	0.6920	0.7513	0.6540
Cheap POS Unigrams	0.6802	0.7427	0.6238
LaPlace Actual POS 2-grams	0.7406	0.7910	0.7037
LaPlace Cheap POS 2-grams	0.7357	0.7807	0.6852
Actual POS Bigrams	0.7395	0.7997	0.7027
Cheap POS Bigrams	0.7410	0.7841	0.6988
Actual word/POS 2-grams + POS 2-grams	0.8350	0.8722	0.8051
Cheap POS word/POS 2-grams + POS 2-grams	0.8337	0.8756	0.7973
Actual POS Trigrams	0.8160	0.8411	0.7836
Cheap POS Trigrams	0.8131	0.8549	0.7700
word 2-grams	0.8231	0.8549	0.7856

Table 4.1: Average Dialog Act Tagging Accuracies Leaving 10% of Authors Out

for testing varies significantly with a maximum of 1,203 and minimum of 579. This is due to the wide variation in individual user contributions. Figure 4.9 provides a histogram of the number of authors with post count bins on the x-axis. Note that 913 authors (81.4%) of the identifiable authors produced 10 or less posts while the most prolific author provided more than 130 posts. Splitting the data set by author and the disparity in levels of author participation are responsible for our test population variance. Table 4.1 shows that it is unlikely that our dialog act classification method is influenced by author characteristics.

We have demonstrated a technique that provides improved dialog act tagging accuracy in the chat domain. We have also shown statistical significance in our method's performance and that our results are not skewed by author characteristics. While prior work in this domain has relied on time consuming, human-verified part of speech tagging, our method demonstrates that this

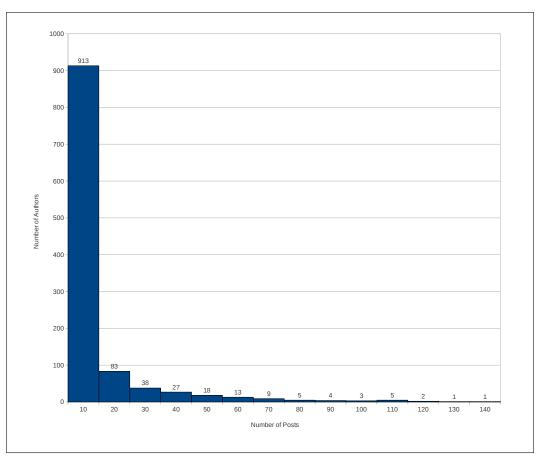


Figure 4.9: Histogram of Author Post Counts

investment is not required for effective dialog act tagging in the chat domain.

With our presentation of experiment results and analysis complete, we provide our conclusions and recommendations for future work in Chapter 5.

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# CHAPTER 5: CONCLUSIONS AND FUTURE WORK

## 5.1 Conclusions

Part of speech tagging is useful in dialog act tagging as shown in Forsyth [6] and Wu et al. [8]. Unfortunately, at the current state-of-the-art, accurate grammatical tagging requires hand-annotation in the chat domain. We hypothesize that by using cross-domain MLE part of speech tags, similar dialog act tagging performance is achievable with significantly less effort vis-a-vis hand POS tagging.

The methodology presented in Chapter 3 performs virtually as well as using actual, hand-tagged part of speech tags without the preprocessing time and effort. Our experiments show that for the chat domain, accurate POS tags are not required to effectively determine chat post dialog act tags. Though our results show a minimal decrease in overall accuracy when compared to same experiments using actual parts of speech, we required no preprocessing nor hand-tagging of parts of speech. Further, cheap POS tagging is extremely fast. We also showed, through statistical significance testing that our method's performance, with high probability, is not the result of chance.

While using actual POS tags performed only 0.3% better than cheap POS tags, for accurate dialog act determination, we required only the processing time required to load our POS dictionary and apply these tags.

# **5.1.1** Uses for Dialog Acts

Stolcke suggests that consensus is building in the Natural Language Processing community that dialog act tags are useful for higher-order linguistic analysis [12]. Dialog act tags have been used in multi-party meeting summarization (Yang et al. [26]) and spoken dialog systems (Walker and Passionneau [27]). Spoken dialog systems can use dialog act tags to improve response accuracy.

# 5.1.2 Implications for Tactical Military Chat

Eovito's thesis provides a list of functional requirements for tactical military chat. We believe some of these requirements may benefit from automatically determined dialog act information. For example, Eovito' core requirements include Thread Population/Repopulation. This function

is designed to provide new or returning users a recapitulation of recent tactical chat events [2]. Rather than present these participants with a temporally indiscriminant list of messages, we believe that dialog acts could be used to filter the information provided to include dialog acts of interest. For example, the system could be configured to display recent questions and their corresponding answers. Direction from higher-authority in the form of statements could also be highlighted thus filtering unnecessary noise and providing improved situational awareness with less effort required by the user.

An additional requirement identified by Eovito is Chat Logging, or preserving chat data for historical record [2]. While this may simply involve saving files, we believe that post-processing tasks would benefit from our methodology. By automatically identifying dialog acts and using these new features, we could separate the inherently interleaved conversations thus automatically providing a summary of who said what to whom and when. We believe this information could then be used to generate lessons learned for individuals, units and operational planners.

While our method will require addition of further functionality to achieve these goals, we believe that we provide an enabling foundation for further development.

# 5.2 Contributions

Our experiments serve to expand the field and include:

- We developed a cross-genre POS tagging methodology. This pushes the field forward in that it was previously known that MLE *within genre* works well; our contribution shoes that MLE cross-genre is effective in the chat domain. We refer to this as "Cheap" POS (or CPOS) tagging. This opens the door for more research in domains where there is little labeled data.
- We further validated the benefits of CPOS tagging by comparing it against hand-tagged POS for dialog act prediction. Our research shows that the extra work required for hand labeling is unnecessary. Simply using pre-existing labeled data from other genres is as effective without the time and cost investment.
- We empirically verified Harris' "Distribution Hypothesis" as applied to emoticons. When we treat emoticons as distinct parts-of-speech, with their own *n*-gram distributions, our results are better.

• We accomplished significant feature engineering to discover effective combinations of features for dialog act tagging. Further research is needed, but we believe these features will be useful for down-stream analysis.

#### 5.3 Future Work

While we have provided useful results, we recommend the following research with the goal of improving on this foundation:

- For most machine learning techniques, more training data is generally desired. We recommend continuing Forsyth's work in privacy masking and tagging more of the chat corpus.
  Results for this and other methods would benefit from expanded training data. Our work should prove useful in expanding the size of the NPS chat corpus after anonymizing a larger portion of the raw data collected by Lin.
- Traditional Naïve Bayes classifiers use the formula

$$\hat{C} = \operatorname*{argmax}_{C \in Classes} \log P(C) + \sum_{i} \log P(f_i|C).$$

In the course of our experimentation, we noted that our classifier determined the correct class within the top two results over 89% of the time using the formula

$$\hat{C} = \underset{C \in Classes}{\operatorname{argmax}} \log P(C) + \sum_{i} \log P(wpp_i|C) + \sum_{j} \log P(pb_j|C).$$

where  $wpp_i$  is word/POS pair i and  $pb_j$  is POS bigram j. Our recommendation is an exploration of cascading naïve Bayes results to another classifier in order to improve dialog act tagging accuracy. As noted in Chapter 4, our results decreased slightly when we segregated emoticons that differed in form by tagging them with different parts of speech. Additional training data is needed to determine if this decrease in performance is due to these features similarity or if segregating them reduced our classifiers ability to overcome the widely disparate dialog act class prior probabilities.

• Per Forsyth's recommendations, we showed that emoticons may be better tagged with a POS tag different from "UH" [6]. An exploration of this phenomenon should include other potential tagging schemes for these features.

- The use of this method of dialog act determination should be explored in the tactical military chat domain. Additional effort should be directed to thread extraction in this critical command and control subsystem to provide the functionality proposed above.
- We also believe that our method of dialog act tagging chat posts would translate to similar results on Short Message Service (SMS) data. The popularity of this form of computer mediated communications continues to grow. A corpus of privatized text messages should be constructed for analysis.
- We initially hypothesized that cheap POS tags could be useful in authorship identification.
   While we performed no work to validate this theory, we believe that it should be explored.

#### **5.4** Final Conclusion

We present a methodology that capitalizes on previous, human-involved POS tagging efforts to effectively determine dialog acts in the chat domain. We hypothesize that methods similar to ours are useful for analysis of emerging domains. This research is an initial foray into the cross-genre POS domain providing a foundation to improve methods in other areas of interest for natural language processing.

# APPENDIX A: EMOTICON DICTIONARY

```
:-)
     XD
                  :-b
                          :-/
                                   O:-)
                                            B-)
            v.v
            :-9
                                   0:3
     =D
                          :/
                                            8)
:)
                  :b
     =3
            ;-)
                  :-0
                                   O:)
                                            8-)
:o)
:]
      <=3
            ;)
                  :0
                                   :'(
                                            D:<
                          =/
:3
      <=8
            *)
                  0_{-}0
                          =
                                   ;*(
                                            >:(
            ;]
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                                            D-:<
:c)
     :-(
                  O_O
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             ;D
                  8O
                                   TT_{-}TT \\
                                            >:-(
                                   T.T
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            :-P
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     :c
8)
            :P
                  O-O
                          qB-)
                                   :-*
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     ]:
            XP
                  O-o
                                   :*
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                          :)
:D
     D:
                  030
                          :-)>...
                                   ô)
                                            D<
            :-p
C:
     D8
                  000
                          :-X
                                   >:)
                                            <3
            :p
                                            < 333
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     D;
            =p
                  ;o_o;
                          :X
                                   >;)
:-D
     D=
                                            8D
                  0...0
                          :=#
                                   >:-)
B)
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                  0w0
                          :#
```

Table A.1: Partial Emoticon Dictionary from Wikipedia

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# APPENDIX B: EFFECTS OF CHEAP POS METHOD

This appendix contains tables showing the redistribution of POS tags by our different emoticon tagging schemes.

Figure B.1 shows the distribution of POS tag counts across all dialog act classes as tagged by Forsyth [6] and serves as a baseline for comparison.

		Actua	I POS	count	s:																					
	NN		INPS	NNS	JJ	JJR	JJS	VB	VBD	VBG		VBP	VBZ		RBR	RBS	RP	PDT	POS	PRP	PRP\$	IN	то	DT	UH	BES
Statement		1473	12	579		33	20	1230	585	388	151	983	450	1240	23	1	-	3	21	2469	311	1220		1214	1330	
System	956	689	3	150	159	9	2	2233	43	77	49	58	377	133	2			0	38	143	77	315		244	95	
Greet	110	1127	0	36	31	0	-	25	4	4	2	15	2	27	0	-		0	2	41	8	21	27	47	1437	
Emotion	17	339	0	14	23	0	-	17	0	6	2	9	10	20	0	-		0	0	30	3	22		10	1195	
ynQuestion	341	312	3	127	144	2		231	59	49	26	249	70	185	5			0	0	354	25	187	56	259	150	
whQuestion	226	298	0	43	130	1	2	70	80	66	18	169	88	85	0			0	5	263	20	152		130	132	2
Accept	33	73	0	10	49	0		22	14	7	3	42	17	48	0			0	0	95	3	21	6	35	222	
Bye	42	90	0	14	18	0	_	38	5	8	3	25	9	33	0	-		0	0	38	6	12		34	193	
Emphasis	118	69	1	23	53	2		63	22	19	9	51	19	64	2			1	1	134	23	56		56	74	
Continuer	61	23	1	17	25	2		40	13	14	1	34	10	29	1			0	0	72	6	45		45	31	
Reject	64	56	0	28	27	0		81	14	20	2	54	9	87	1			0	0	93	14	36	-	60	86	
yAnswer	21	44	0	4	12	0	-	7	12	3	2	18	9	12	1	-		0	0	50		10		20	108	
nAnswer	20	25	0	3	10	0	_	14	6	3	2	14	3	32	0			0	0	37	0	13	_	23	66	
Clarify	9	8	0	6	2	0	-	5	4	1	1	10	1	8	0			0	0	13	0	0		4	16	
Other	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	1	14	(
											T		1						_				1			1
	CC		EX	FW		HVS			WDT		WRB	Х	UNK	:	,			EM2	)	(	LS	\$		WP\$	MD*	ļ
Statement	413	226	18	7	12	3	296	73	42	63	90	2	0	772	317	339		0	18	19	1	0	-	0	0	
System	93	234	0	0	1	0	19	645	3	16	4	6	0	290	72	472	-	0	39	40		0	-	0	0	
Greet	24	11	15	1	2	0	_	9	0	13	7	1	0	52	26	96	-	0	1	1	0	0	-	0	0	
Emotion	-1	- 1	0	0	0	_	-		0	12	10	1	0	39	10		0	0	0	0	-	0	-	0	0	
ynQuestion	53	45	4	0	3	0		2	1			0		62	32		0	0	2	1	0		-	0		
	51	11 5	2	4	0	0		0	6	268	210	1	0	64	41		-	0	0	0	0	0	_	0	0	
whQuestion	41		21	0				4	1 0	3	3	0		43 30	23 12	22 19		0	1 0	0		0	-	0	0	-
Accept	4			0	Δ.								OI.	30							U		U	-		
Accept Bye	4	1	0	0	0	0								4.4	1.0	170	_ ∩	0			^	^	0	0		
Accept Bye Emphasis	4	1 8	0	0	3	0	14	6	0	6	2	2	0	44	16			0	0	0	-	0	-	0	0	
Accept Bye Emphasis Continuer	4 7 56	1 8 13	0 0 0	0	3	0	14 9	6	0	6 2	2	2	0	23	5	16	0	0	0	0	0	0	0	0	0	
Accept Bye Emphasis Continuer Reject	4 7 56 17	1 8 13 2	0 0 0 2	0 2 1	3 0 2	0 0	14 9 8	6	0 2 1	6 2 2	2 4 0	2 0 0	0 0 0	23 27	5 20	16 35	0	0	0	0	0	0	0	0	0	
Accept Bye Emphasis Continuer Reject yAnswer	4 7 56 17 4	1 8 13 2 0	0 0 0 2	0 2 1 0	3 0 2 0	0 0 0	14 9 8 5	6 1 0	0 2 1 0	6 2 2 0	2 4 0 4	2 0 0	0 0 0	23 27 27	5 20 11	16 35 13	0 0	0 0	0	0	0 0	0	0 0	0 0	0 0	
Accept Bye Emphasis Continuer Reject yAnswer nAnswer	4 7 56 17 4	1 8 13 2 0	0 0 0 2 0	0 2 1 0 0	3 0 2 0 0	0 0 0 0	14 9 8 5 3	6 1 0 1	0 2 1 0 0	6 2 2 0 1	2 4 0 4 0	2 0 0 1	0 0 0 0	23 27 27 14	5 20 11 10	16 35 13 4	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0	0 0 0	0 0 0	0 0 0	1
Accept Bye Emphasis Continuer Reject yAnswer	4 7 56 17 4	1 8 13 2 0	0 0 0 2	0 2 1 0	3 0 2 0	0 0 0	14 9 8 5 3	6 1 0	0 2 1 0	6 2 2 0	2 4 0 4	2 0 0	0 0 0	23 27 27	5 20 11	16 35 13 4 1	0 0	0 0	0	0	0 0 0 0	0	0 0 0 0	0 0	0 0 0 0	

Figure B.1: Actual POS Counts

Figure B.2 shows the distribution of POS tag counts when emoticons are unrecognized and are tagged as "UNK". We can observe the changes in POS tag counts resulting from our cheap POS methodology. Specifically, note the increased size of the UNK category. Shifts in the noun and verb categories are also evident as a result of our maximum likelihood estimation approach to POS tagging.

			POS c		JJ	JJR	JJS	VB	VBD	VBG	VBN	VBP	VBZ	RB	RBR	RBS	RP	PDT	POS	PRP	PRP\$	IN	то	DT	UH	BE
Statement		1580	4	528	1113	52	50		493	313	252	463	403	1186	8	_	192	0	116	2081	379	1409	384	976	211	DL.
System	1962	546	2		140	11	7	1191	39	64	67	33	219	129			44	0	52	135	85	314	91	233	12	
Greet	128	1155	0		98	0	0	26	4	1	2	7	213	26			16	0	4	30	11	22	27	6	969	
Emotion	37	343	0		34	0	2	19	0	6	4	4	6	20			3	0	2	20	10	22	5	10	41	
ynQuestion	357	315	2		126	7	8	317	57	37	38	75	68	171	0	-	30	0	5	304	32	211	53	228	52	
whQuestion	229	328	0		130	1	4	118	67	54	28	91	85	94			29	0	20	196	21	248	45	99	34	
Accept	44	83	0		92	0	5	32	15	4	3	16	18	68			2	0	6	85	6	34	6	17	61	
Bye	60	127	0	-	35	0	1	39	3	6	5	15	7	26		0	11	0	1	30	6	10	10	16	45	
Emphasis	114	70	1	22	57	4	2	66	20	11	16	24	18	61	1	0	7	0	8	114	28	69	11	44	12	
Continuer	59	34	2		26	3	6	49	10	12	2	11	10	29		-	3	0	4	59	7	49	15	36	1	
Reject	72	77	0		29	1	1	69	9	15	12	21	10	89			19	0	2	78	12	41	10	70	16	
vAnswer	25	40	0		18	1	2	12	9	3	4	11	9	58			0	0	0	42	11	12	2	14	20	
nAnswer	20	27	0	-	8	0	0	15	6	2	4	8	2	26		-	1	0	0	28	1	16	5	61	10	
Clarify	11	8	0	4	2	0	0	11	4	0	1	1	0	9	0	0	0	0	0	13	1	0	1	3	4	
Other	1	4	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	
				-	- 1	1		- 1	-		1							1	-		-					
	CC	CD	EX	FW	GW	HVS	MD	SYM	WDT	WP	WRB	Х	UNK	:	,		ЕМО Е	EMO2	)	(	LS	\$	#	WP\$	MD*	
Statement	313	277	66	13	0	0	254	10	47	0	90	0	2647	256	316	337	0	0	18	19	0	1	0	0	1	
System	61	207	3	1	0	0	18	1	12	0	4	0	674	176	72	1025	0	0	26	30	0	0	2	0	0	
Greet	14	14	18	3	0	0	3	0	2	0	6	0	491	25			0	0	1	1	0	0	0	0	0	
	1	4	2	0	0	0	4	0	1	0	1	0	1173	17	10		0	0	0	0	0	0	0	0	0	
Emotion		58	15	3	0	0	42	0	5	0	10	0	362	30		352	0	0	2	1	0	0	0	0	0	
Emotion ynQuestion	36					0	20	0	134	0	197	0	364	18	41	308	0	0	0	0	0	0	0	1	0	
ynQuestion	36 46	15	7	2	0	0									23	24	0	0	1	1	0	0	0	0	0	
ynQuestion whQuestion Accept	46 4	15 6	4	0	0	0	6	0	1	0	3	0	132	17												
ynQuestion whQuestion	46 4 2	15 6 2	4	0	0	-	6	0	0	0	2	0	134	11	12	16	0	0	0	0	0	0	0	0	0	
ynQuestion whQuestion Accept Bye Emphasis	46 4 2 6	15 6 2 8	4 0 2	0 1 0	0 0	0	6 3 12	0	0 4	0	2	0	134 205	11 20	12 16	16 109	0	0	0	0	0	0	0	0	0	
ynQuestion whQuestion Accept Bye Emphasis Continuer	46 4 2 6 54	15 6 2	4 0 2 1	0 1 0 0	0 0 0	0 0 0	6 3 12 9	0 1 0	0 4 2	0 0	2 3 4	0 0	134 205 78	11 20 3	12 16 5	16 109 18	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0	0 0 0	0	0 1 0	
ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	46 4 2 6 54 15	15 6 2 8 14 4	4 0 2 1 3	0 1 0 0	0 0 0 0	0 0 0 0	6 3 12 9 7	0 1 0	0 4 2 2	0 0 0	2 3 4 0	0 0 0	134 205 78 105	11 20 3 14	12 16 5 20	16 109 18 31	0 0 0	0 0 0	0							
ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	46 4 2 6 54 15 4	15 6 2 8 14 4	4 0 2 1 3 0	0 1 0 0 0	0 0 0 0 0	0 0 0 0 0	6 3 12 9 7 5	0 1 0 0	0 4 2 2 0	0 0 0 0	2 3 4 0 5	0 0 0 0	134 205 78 105 62	11 20 3 14 12	12 16 5 20 11	16 109 18 31 11	0 0 0 0	0 0 0	0							
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Figure B.2: POS Counts with Emoticons Unrecognized

Figure B.3 shows the changes in the "UH" category as emoticons were moved from the "UNK" POS counts.

1			POS c		JJ	JJR	JJS	VB	VBD	VBG	VBN	VBP	VBZ	RB	RBR	RBS	RP	PDT	POS	PRP	PRP\$	IN	то	DT	UH	BES
Statement		1580	ININES	528	1113	52	50		493	313	252	463	403	1186			192	0	116	2081	379	1409	384	976	604	DE
System		546	2		140	11	7	1191	39	64	67	33	219	129			44	0	52	135	85	314	91	233	27	
Greet	128		0		98	0	0	-	4	1	2	7	213	26			16	0	4	30		22	27	6	1118	
Emotion	37	343	0	-	34	0	2	-	0	6	4	4	6	20			3	0	2	20		22	5	10	757	
ynQuestion	357	315	2		126	7	8		57	37	38	75	68	171		-	30	0	5	304		211	53	228	85	
whQuestion	229		0		130	1	4		67	54	28	91	85	94			29	0	20	196		248	45	99	70	
Accept	44	83			92	0	5		15	4	3	16	18	68			2	0	6	85		34	6	17	89	
Bye	60		0	-	35	0	1		3	6	5	15	7	26		0	11	0	1	30		10	10	16	104	
Emphasis	114	70	1	22	57	4	2	66	20	11	16	24	18	61	1	0	7	0	8	114	28	69	11	44	30	
Continuer	59	34	2		26	3	6		10	12	2	11	10	29			3	0	4	59		49	15	36	11	
Reject	72	77	0		29	1	1	69	9	15	12	21	10	89		0	19	0	2	78	12	41	10	70	25	
yAnswer	25	40	0	5	18	1	2		9	3	4	11	9	58			0	0	0	42		12	2	14	30	
nAnswer	20	27	0	4	8	0	0	15	6	2	4	8	2	26	0	0	1	0	0	28	1	16	5	61	19	
Clarify	11	8	0	4	2	0	0	11	4	0	1	1	0	9	0		0	0	0	13	1	0	1	3	9	
Other	1	4	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	
Other					1	-			-		٠,				0				0	1						
Other	СС	CD	EX	FW	GW 1	0 <b>HVS</b>	MD	SYM	WDT		WRB		UNK	:	,		ЕМО	EMO2	)	(	LS	\$	#	1 <b>WP\$</b>	2 <b>MD*</b>	
Other Statement	<b>CC</b> 313	<b>CD</b> 277	<b>EX</b> 66	<b>FW</b> 13	0	-	MD 254	SYM	<b>WDT</b> 47	<b>WP</b> 0	٠,		<b>UNK</b> 2254	: 256	, 316	337	<b>EMO</b> 0		) 18	<b>(</b>	<b>LS</b> 0	<b>\$</b>	# 0	<b>WP\$</b>		
Statement System	CC 313 61	<b>CD</b> 277 207	<b>EX</b> 66	<b>FW</b> 13	0	<b>HVS</b> 0	MD 254 18	SYM 10 1	WDT 47 12	<b>WP</b> 0	<b>WRB</b> 90 4	<b>X</b> 0 0	UNK 2254 659	256 176	, 316 72	337 1025	<b>EMO</b> 0 0	<b>EMO2</b> 0 0	) 18 26	( 19 30	<b>LS</b> 0	<b>\$</b> 1 0	# 0 2	<b>WP\$</b> 0 0		
Statement System Greet	CC 313 61 14	CD 277 207 14	<b>EX</b> 66 3 18	FW 13 1 3	0 0	HVS 0 0	MD 254 18	<b>SYM</b> 10 1 0	WDT 47 12 2	<b>WP</b> 0 0 0	WRB 90 4 6	X 0 0 0	UNK 2254 659 342	256 176 25	, 316 72 26	337 1025 67	<b>EMO</b> 0 0 0	<b>EMO2</b> 0 0 0	) 18 26 1	( 19 30 1	<b>LS</b> 0 0	\$ 1 0	# 0 2 0	<b>WP\$</b> 0 0 0	MD* 1 0	
Statement System Greet Emotion	CC 313 61 14	277 207 14 4	<b>EX</b> 66 3 18	FW 13 1 3 0	0 0 0	HVS 0 0 0 0 0	MD 254 18 3 4	SYM 10 1 0 0	WDT 47 12 2 1	<b>WP</b> 0 0 0 0	WRB 90 4 6 1	X 0 0 0 0 0 0	UNK 2254 659 342 457	256 176 25 17	, 316 72 26 10	337 1025 67 53	<b>EMO</b> 0 0 0 0	<b>EMO2</b> 0 0 0 0	) 18 26 1	19 30 1	US 0 0 0 0 0	\$ 1 0 0	# 0 2 0	<b>WP\$</b> 0 0 0 0	MD* 1 0 0 0	
Statement System Greet Emotion ynQuestion	CC 313 61 14 1 36	277 207 14 4 58	66 3 18 2 15	FW 13 1 3 0 3 3	0 0 0	HVS 0 0 0 0 0 0 0	MD 254 18 3 4	SYM 10 1 0 0 0 0 0	WDT 47 12 2 1 5	<b>WP</b> 0 0 0 0 0 0	WRB 90 4 6 1	X 0 0 0 0	UNK 2254 659 342 457 329	256 176 25 17 30	, 316 72 26 10 32	337 1025 67 53 352	<b>EMO</b> 0 0 0 0 0	<b>EMO2</b> 0 0 0 0 0	) 18 26 1 0 2	19 30 1 0	US 0 0 0 0 0 0 0	\$ 1 0 0 0	# 0 2 0 0	WP\$ 0 0 0 0 0	MD* 1 0 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion	CC 313 61 14 1 36 46	277 207 14 4 58 15	<b>EX</b> 66 3 18 2 15	FW 13 1 3 0 3 2	0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD 254 18 3 4 42 20	SYM 10 1 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90 4 6 1 10 197	X 0 0 0 0 0	UNK 2254 659 342 457 329 328	256 176 25 17 30	316 72 26 10 32 41	337 1025 67 53 352 308	EMO 0 0 0 0 0 0 0 0	0 0 0 0 0 0	) 18 26 1 0 2	19 30 1 0 1	US 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0	# 0 2 0 0 0	WP\$ 0 0 0 0 0 1	MD* 1 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion Accept	CC 313 61 14 1 36 46 4	277 207 14 4 58 15	EX 666 3 18 2 15 7 4	FW 13 1 1 3 0 3 2 0 0	0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD 254 18 3 4 42 20 6	SYM 10 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134 1	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90 4 6 1 10 197 3	X 0 0 0 0 0	UNK 2254 659 342 457 329 328 104	256 176 25 17 30 18 17	, 316 72 26 10 32 41 23	337 1025 67 53 352 308 24	0 0 0 0 0 0	EMO2 0 0 0 0 0 0	) 18 26 1 0 2 0	19 30 1 0 1 0	US 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0	# 0 2 0 0 0	WP\$ 0 0 0 0 1	MD* 1 0 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	CC 313 61 14 1 36 46 46	277 207 14 4 58 15 6	EX 66 3 18 2 15 7 4 0 0	FW 13 1 3 0 3 3 2 0 1 1	0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD 254 18 3 4 42 20 6 3	\$YM 10 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134 1 0	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75	256 176 25 17 30 18 17	, 316 72 26 10 32 41 23 12	337 1025 67 53 352 308 24 16	<b>EMO</b> 0 0 0 0 0 0 0 0 0 0 0	<b>EMO2</b> 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1	( 19 30 1 0 1 0 1	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WP\$ 0 0 0 0 1 0 0 0 0 0 0 0	MD* 1 0 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	CC 313 61 14 1 36 46 4 4 2	277 207 14 4 58 15 6 2	EX 66 3 18 2 15 7 4 0 2	FW 13 1 3 0 0 3 3 2 0 0 1 0 0	0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD 254 18 3 4 42 20 6 6 3 12	SYM 10 1 1 0 0 0 0 0 0 0 0 0 1 1	WDT 47 12 2 1 5 134 1 0 4	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187	256 176 25 17 30 18 17 11	, 316 72 26 10 32 41 23 12	337 1025 67 53 352 308 24 16	0 0 0 0 0 0 0 0	EMO2 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1 1 0	19 30 1 0 1 0 1 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0	WP\$ 0 0 0 0 0 1 0 0 0 0	MD* 1 0 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	CC 313 61 14 1 36 46 4 2 6	277 207 14 4 58 15 6 2 8 14	EX 666 3 18 2 15 7 4 0 0 2 1	FW 13 1 3 0 0 3 3 2 0 0 1 0 0 0 0	0 0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD 254 18 3 4 42 20 6 3 3 12 9	SYM 10 1 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0	WDT 47 12 2 1 1 5 134 1 0 0 4 2	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3 4	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2254 659 342 457 329 328 104 75 187 68	256 176 25 17 30 18 17 11 20	, 316 72 26 10 32 41 23 12 16	337 1025 67 53 352 308 24 16 109	0 0 0 0 0 0 0 0 0	EMO2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1 0 0	19 30 1 0 1 0 1 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0	WP\$ 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	CC 313 61 14 1 36 46 4 2 6 54	277 207 14 4 58 15 6 2 8 14	EX 666 3 18 2 15 7 4 0 0 2 1 1 3	FW 13 1 3 0 0 3 2 0 0 1 0 0 0 0 0	0 0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD 254 18 3 4 42 20 6 3 12 9 7	SYM 10 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134 1 0 4 2 2	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3 4 0	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68 96	256 176 25 17 30 18 17 11 20 3	, 316 72 26 10 32 41 23 12 16 5	. 337 1025 67 53 352 308 24 16 109 18	EMO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	EMO2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 0 1 0 0 0 0	19 30 1 0 0 1 0 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WP\$ 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	CC 313 61 14 1 1 36 46 4 2 6 54 15	277 207 14 4 58 15 6 2 8 14 4	EX 66 3 18 2 15 7 4 0 0 2 1 3 0 0	FW 13 1 3 0 0 3 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD  254  18  3  4  20  6  3  12  9  7  5	SYM 10 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 11 5 134 1 0 4 2 2 0	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3 4 0 5	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68 96 52	: 256 176 25 17 30 18 17 11 20 3 14	, 316 72 26 10 32 41 23 12 16 5 20	. 337 1025 67 53 352 308 24 16 109 18 31	EMO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	EMO2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1 0 0 0 0 0 0	19 30 1 0 1 0 1 0 0 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WP\$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer nAnswer	CC 313 61 14 1 1 36 46 4 2 6 54 15 4 4	277 207 14 4 58 15 6 2 8 14 4 0	EX 66 3 18 2 15 7 4 0 0 2 1 3 0 0 0	FW 13 1 1 3 3 0 0 0 1 1 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD 254 18 3 4 42 20 6 3 12 9 7 5 3	SYM 10 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134 1 0 4 2 2 0 0 0	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3 4 0 5 0	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68 96 52 30	: 256 176 25 17 30 18 17 11 20 3 14 12	, 316 72 26 10 32 41 23 12 16 5 20	337 1025 67 53 352 308 24 16 109 18 31	EMO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	EMO2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1 0 0 0 0 0 0 0	19 30 1 0 1 0 0 1 0 0 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WP\$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	CC 313 61 14 1 1 36 46 4 2 6 54 15	277 207 14 4 58 15 6 2 8 14 4 0	EX 66 3 18 2 15 7 4 0 0 2 1 3 0 0 0	FW 13 1 1 3 3 0 0 0 1 1 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD  254  18  3  4  20  6  3  12  9  7  5	SYM 10 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 11 5 134 1 0 4 2 2 0	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3 4 0 5	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68 96 52	: 256 176 25 17 30 18 17 11 20 3 14	, 316 72 26 10 32 41 23 12 16 5 20	337 1025 67 53 352 308 24 16 109 18 31	EMO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	EMO2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1 0 0 0 0 0 0	19 30 1 0 1 0 1 0 0 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WP\$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0	

Figure B.3: POS Counts with Emoticons Tagged as Interjections

In Figure B.4, we have tagged all emoticons with the unique "EMO" tag. Note the changes from the "UH" category to the "EMO" column.

٦	NN		POS co	NNS	JJ	JJR	JJS	VB	VBD	VBG	VBN	VBP	VBZ	RB	RBR I	RBS	RP	PDT	POS	PRP	PRP\$	IN	то	DT	UH	ВЕ
Statement	2172	1580	4		1113	52	50	1248	493	313	252	463	403	1186	8	0	192	0	116	2081	379	1409	384	976	211	
System	1962	546	2	238	140	11	7	1191	39	64	67	33		129	2	0	44	0	52	135	85	314	91	233	12	
Greet	128	1155	0	31	98	0	0	26	4	1	2	7	2	26	0	0	16	0	4	30	11	22	27	6	969	
Emotion	37	343	0	18	34	0	2	19	0	6	4	4	6	20	0	0	3	0	2	20	10	22	5	10	41	
ynQuestion	357	315	2	108	126	7	8	317	57	37	38	75	68	171	0	0	30	0	5	304	32	211	53	228	52	
whQuestion	229	328	0	41	130	1	4	118	67	54	28	91	85	94	2	0	29	0	20	196	21	248	45	99	34	
Accept	44	83	0	9	92	0	5	32	15	4	3	16		68	0	0	2	0	6	85	6	34	6	17	61	
Bye	60	127	0	14	35	0	1	39	3	6	5	15	7	26	11	0	11	0	1	30	6	10	10	16	45	
<b>Emphasis</b>	114	70	1	22	57	4	2	66	20	11	16	24	18	61	1	0	7	0	8	114	28	69	11	44	12	
Continuer	59	34	2	14	26	3	6	49	10	12	2	11		29	0	0	3	0	4	59	7	49	15	36	1	
Reject	72	77	0	20	29	1	1	69	9	15	12	21		89	0	0	19	0	2	78	12	41	10	70	16	
yAnswer	25	40	0	5	18	1	2	12	9	3	4	11		58	0	0	0	0	0	42	11	12	2	14	20	
nAnswer	20	27	0	4	8	0	0	15	6	2	4	8		26	0	0	1	0	0	28	1	16	5	61	10	
Clarify	11	8	0	4	2	0	0	11	4	0	1	1		9	0	0	0	0	0	13	1	0	1	3	4	
•			-	- 1																						
Other	1	4	-	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	
-		4	0		1		0						-		0				0	1						
Other	СС	CD 4	0 <b>EX</b>	FW	1 GW	HVS	0 <b>MD</b>	SYM	WDT	WP	WRB	Х	UNK	:	,		ЕМО	EM2	)	(	LS	\$	#	WP\$	0 <b>MD*</b>	<u>                                     </u>
Other	<b>CC</b> 313	277	0 <b>EX</b> 66		1 <b>GW</b> 0	HVS 0	254	<b>SYM</b> 10	<b>WDT</b> 47	<b>WP</b> 0	<b>WRB</b> 90	<b>X</b>	UNK 2254	: 256	, 316	. 337	<b>EMO</b> 393	<b>EM2</b>	) 18	( 19	LS 0	<b>\$</b>	# 0	<b>WP\$</b>	MD*	
Other  Statement System	CC 313 61	277 207	66 3	FW 13 1	1 <b>GW</b> 0 0	<b>HVS</b> 0 0	254 18	<b>SYM</b> 10 1	WDT 47 12	<b>WP</b> 0	<b>WRB</b> 90 4	<b>X</b> 0	UNK 2254 659	: 256 176	, 316 72	337 1025	<b>EMO</b> 393 15	<b>EM2</b> 0 0	) 18 26	( 19 30	LS 0 0	<b>\$</b> 1	# 0 2	<b>WP\$</b> 0 0	MD* 1 0	
Other  Statement System Greet	CC 313 61 14	277 207 14	66 3	FW 13 1 3	0 0 0	HVS 0 0 0	254 18 3	<b>SYM</b> 10 1	WDT 47 12 2	<b>WP</b> 0 0 0	<b>WRB</b> 90 4 6	X 0 0 0	UNK 2254 659 342	: 256 176 25	, 316 72 26	337 1025 67	<b>EMO</b> 393 15 149	<b>EM2</b> 0 0 0	) 18 26 1	19 30 1	LS 0 0 0	\$ 1 0	# 0 2 0	<b>WP\$</b> 0 0 0	MD* 1 0	
Other  Statement System Greet Emotion	CC 313 61 14	277 207 14	66 3 18 2	FW 13 1 3 0	0 0 0 0	HVS 0 0 0 0	254 18 3 4	5YM 10 1 0	WDT 47 12 2 1	<b>WP</b> 0 0 0 0	WRB 90 4 6 1	X 0 0	UNK 2254 659 342 457	: 256 176 25 17	, 316 72 26 10	337 1025 67 53	EMO 393 15 149 716	<b>EM2</b> 0 0 0 0	) 18 26 1	19 30 1 0	US 0 0 0 0 0	\$ 1 0 0	# 0 2 0	<b>WP\$</b> 0 0 0 0	MD* 1 0 0	
Statement System Greet Emotion ynQuestion	CC 313 61 14 1 36	277 207 14 4 58	EX 66 3 18 2 15	FW 13 1 3 0 3	0 0 0 0	HVS 0 0 0 0 0 0	254 18 3 4 42	5YM 10 1 0 0	WDT 47 12 2 1 5	<b>WP</b> 0 0 0 0 0	WRB 90 4 6 1 10	X 0 0 0	UNK 2254 659 342 457 329	: 256 176 25 17 30	, 316 72 26 10 32	337 1025 67 53 352	<b>EMO</b> 393 15 149 716 33	<b>EM2</b> 0 0 0 0 0	) 18 26 1 0	19 30 1 0	US 0 0 0 0 0 0	\$ 1 0 0 0	# 0 2 0 0	WP\$ 0 0 0 0 0	MD* 1 0 0 0 0	
Statement System Greet Emotion ynQuestion whQuestion	CC 313 61 14 1 36 46	277 207 14 4 58 15	66 3 18 2 15	FW 13 1 3 0 3 2	0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0	254 18 3 4 42 20	5YM 10 1 0 0 0	WDT 47 12 2 1	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90 4 6 1 10 197	X 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328	: 256 176 25 17 30 18	, 316 72 26 10 32 41	337 1025 67 53 352 308	EMO 393 15 149 716 33 36	<b>EM2</b> 0 0 0 0 0 0	) 18 26 1 0 2	19 30 1 0 1	US 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0	# 0 2 0 0 0	WP\$ 0 0 0 0 0 1	MD* 1 0 0 0 0 0	
Statement System Greet Emotion ynQuestion vhQuestion Accept	CC 313 61 14 1 36 46 4	277 207 14 4 58 15 6	66 3 18 2 15 7	FW 13 1 3 0 3	0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	254 18 3 4 42 20 6	\$YM 10 1 0 0 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134 1	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	90 4 6 1 10 197 3	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104	: 256 176 25 17 30 18 17	, 316 72 26 10 32 41 23	337 1025 67 53 352 308 24	28 EMO 393 15 149 716 33 36 28	EM2 0 0 0 0 0	) 18 26 1 0 2 0	19 30 1 0 1 0	US 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0	# 0 2 0 0 0	WP\$ 0 0 0 0 1	MD* 1 0 0 0 0 0 0 0	
Statement System Greet Emotion /nQuestion vhQuestion Accept Bye	CC 313 61 14 1 36 46 46 2	277 207 14 4 58 15 6	0 EX 66 3 18 2 15 7 4	FW 13 1 3 0 3 2 0 1 1	0 0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	254 18 3 4 42 20 6 3	\$YM 10 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134 1 0	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75	: 256 176 25 17 30 18 17	316 72 26 10 32 41 23	337 1025 67 53 352 308 24 16	### EMO   393   15   149   716   33   36   28   59	EM2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1	( 19 30 1 0 1 0	US 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WP\$ 0 0 0 0 1 0 0	MD* 1 0 0 0 0 0 0 0	
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Other  Statement System Greet Emotion ynQuestion ynQuestion Accept Bye Emphasis Continuer Reject	CC 313 61 14 1 36 46 4 2 6 54	277 207 14 4 58 15 6 2 8 14 4	EX 666 3 188 2 2 15 7 4 4 0 0 2 2 1 1 3 3	FW 13 1 1 3 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	254 18 3 4 42 20 6 3 12	\$YM 10 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134 1 0 4 4 2 2 2	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3 4 0	X 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68	: 256 176 25 17 30 18 17 11 20 3	, 316 72 26 10 32 41 23 12 16 5	337 1025 67 53 352 308 24 16 109 18 31	EMO 393 15 149 716 33 36 28 59 18 10 9	EM2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1 0 0 0 0	19 30 1 0 1 0 1 0 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0	WP\$ 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0	
Statement System Greet Emotion ynQuestion Accept Bye Emphasis Continuer Reject yAnswer	CC 313 61 14 1 36 46 4 2 6 54	277 207 14 4 58 15 6 2 8 14 4	EX 66 3 18 2 15 7 4 4 0 2 1 1 3 0 0	FW 13 1 1 3 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	254 18 3 4 42 20 6 3 12	\$YM 10 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134 1 0 4 2 2 0 0	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3 4 0 5	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68 96	: 256 176 25 17 30 18 17 11 20 3 14	, 316 72 26 10 32 41 23 12 16 5	337 1025 67 53 352 308 24 16 109 18 31	EMO 393 15 149 716 33 36 28 59 18 10 9 10	EM2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1 0 0 0 0 0	19 30 1 0 1 0 1 0 0 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0 0	WP\$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0 0 0 0 0 1	
Other  Statement System Greet Emotion ynQuestion ynQuestion Accept Bye Emphasis Continuer Reject	CC 313 61 14 1 36 46 4 2 6 54	277 207 14 4 58 15 6 2 8 14 4	0 EX 66 3 18 2 15 7 4 0 2 1 3 0 0	FW 13 1 1 3 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	HVS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	254 18 3 4 42 20 6 3 12	\$YM 10 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WDT 47 12 2 1 5 134 1 0 4 4 2 2 2	WP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3 4 0	X 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68 96 52	: 256 176 25 17 30 18 17 11 20 3	, 316 72 26 10 32 41 23 12 16 5	337 1025 67 53 352 308 24 16 109 18 31	EMO 393 15 149 716 33 36 28 59 18 10 9	EM2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	) 18 26 1 0 2 0 1 0 0 0 0	19 30 1 0 1 0 1 0 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0	WP\$ 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0	

Figure B.4: POS Counts with Emoticons Tagged with our EMO Tag

Finally, Figure B.5 displays the changes in POS tag counts when emoticons are separated into two groups.

		Cheap F			1																					
	NN		NNPS	NNS	JJ	JJR	JJS	VB	VBD	VBG	VBN	VBP	VBZ	RB		RBS	RP			PRP	PRP\$	IN	то		_	BE
Statement		1580	4	528	1113	52	50	1248	493	313	252	463	403	1186	8	0	192	0	116	2081	379	1409		976	211	
System	1962	546	2	238	140	11	/	1191	39	64	67	33	219	129	2	0	44		52	135	85		91	233	12	
Greet	128		0		98	0	0	26	4	1	2	7	2	26	0	0	16		4	30	11	22	27	6	969	
Emotion	37	343	0	18	34	0	2	19	0	6	4	4	6	20	0	0	3		2	20	10		5	10	41	
ynQuestion	357	315	2	108	126	7	8	317	57	37	38	75	68	171	0	0	30		5	304	32	211	53	228	52	
whQuestion	229	328	0		130	1	4	118	67	54	28	91	85	94	2	0	29		20	196	21		45	99	34	
Accept	44	83	0	•	92	0	5	32	15	4	3	16	18	68	0	0	2		6	85	6		6	17	61	
Bye	60		0	- 1	35	0	1	39	3	6	5	15	7	26	11	0	11		1	30	6		10	16	45	
Emphasis	114	70	1		57	4	2	66	20	11	16	24	18	61	1	0	7		8	114	28		11	44	12	
Continuer	59	34 77	2		26	3	6	49	10	12	2 12	11 21	10	29 89	0	0	3 19		4	59	7		15	36 70	1 16	
Reject	72		0		29	1	1	69	9	15			10		0	0			2	78	12		10	-		
yAnswer	25 20	40 27	0	-	18 8	1	2	12 15	9	3 2	4	11 8	9	58 26	0	0	0		0	42 28	11 1	12 16	2 5	14 61	20 10	
nAnswer	11	8	0	4	8	-		11			4		2		0	_			-			-	1	91	4	_
Clarify Other	11	-	0			0	0	11	4 0	0	0	1	0	9	0	0	0		0	13	1	0		1	0	
Other	Т.	4	U			U	U	U	U	U	U	O											U	11	U	
						-		-						٥					0						-	
	CC	CD	EY	EW	GW	H//C	MD	SVM	WDT	WD			-	•					1							1
Statement	CC 313	<b>CD</b>	EX 66	<b>FW</b>	_	HVS		_	WDT		WRB	х	UNK	:	,	.	ЕМО	EM2	)	(	LS	\$	#	WP\$	MD*	]
Statement	313	277	66	13	0	0	254	10	47	0	<b>WRB</b> 90	<b>X</b> 0	UNK 2254	: 256	, 316	. 337	<b>EMO</b> 94	<b>EM2</b> 299	<b>)</b>	( 19	<b>LS</b> 0	<b>\$</b>	# 0	<b>WP\$</b>	MD*	
System	313 61	277 207	66 3	13 1	0	0	254 18	10 1	47 12	0	<b>WRB</b> 90 4	<b>X</b> 0 0	UNK 2254 659	: 256 176	, 316 72	337 1025	<b>EMO</b> 94 2	<b>EM2</b> 299 13	) 18 26	30	LS 0	\$ 1 0	# 0 2	<b>WP\$</b> 0 0	MD* 1	
System Greet	313 61 14	277 207 14	66 3 18	13 1 3	0 0	0 0	254 18 3	10 1 0	47 12 2	0 0 0	<b>WRB</b> 90 4 6	X 0 0	UNK 2254 659 342	: 256 176 25	, 316 72 26	337 1025 67	94 2 41	EM2 299 13 108	) 18 26 1	30 1	LS 0 0 0	\$ 1 0	# 0 2 0	<b>WP\$</b> 0 0 0	MD* 1 0	
System Greet Emotion	313 61 14 1	277 207 14 4	66 3 18 2	13 1 3 0	0	0	254 18 3 4	10 1 0 0	47 12 2 1	0	WRB 90 4 6	<b>X</b> 0 0	UNK 2254 659 342 457	: 256 176 25 17	, 316 72 26 10	337 1025 67 53	94 2 41 102	EM2 299 13 108 614	) 18 26 1	30	LS 0 0 0 0 0 0	\$ 1 0 0	# 0 2 0	<b>WP\$</b> 0 0 0 0	MD* 1 0 0 0	
System Greet Emotion ynQuestion	313 61 14 1 36	277 207 14 4 58	66 3 18	13 1 3 0 3	0 0 0	0 0 0 0	254 18 3 4 42	10 1 0 0	47 12 2 1 5	0 0 0 0	WRB 90 4 6 1 10	X 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329	: 256 176 25 17 30	, 316 72 26 10 32	337 1025 67 53 352	94 2 41 102 6	EM2 299 13 108 614 27	) 18 26 1 0	30 1 0 1	US 0 0 0 0 0 0 0	\$ 1 0 0 0	# 0 2 0 0	<b>WP\$</b> 0 0 0	MD* 1 0 0 0 0	
System Greet Emotion ynQuestion whQuestion	313 61 14 1	277 207 14 4 58	66 3 18 2	13 1 3 0 3 2	0 0 0 0	0 0 0	254 18 3 4	10 1 0 0	47 12 2 1 5	0 0 0	WRB 90 4 6	X 0 0 0	UNK 2254 659 342 457 329 328	: 256 176 25 17	, 316 72 26 10 32 41	337 1025 67 53 352 308	94 2 41 102 6 4	299 13 108 614 27 32	) 18 26 1	30 1 0	LS 0 0 0 0 0 0	\$ 1 0 0 0 0	# 0 2 0	WP\$ 0 0 0 0 0	MD* 1 0 0 0	
System Greet Emotion ynQuestion	313 61 14 1 36 46	277 207 14 4 58 15	66 3 18 2 15 7	13 1 3 0 3 2 0	0 0 0 0 0	0 0 0 0 0	254 18 3 4 42 20	10 1 0 0 0	47 12 2 1 5 134	0 0 0 0 0	90 4 6 1 10 197	X 0 0 0 0	UNK 2254 659 342 457 329	: 256 176 25 17 30 18	, 316 72 26 10 32 41 23	337 1025 67 53 352	94 2 41 102 6 4 7	299 13 108 614 27 32 21	) 18 26 1 0 2	30 1 0 1 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 0 0 0 0 0	# 0 2 0 0 0	WP\$ 0 0 0 0 0 1	MD* 1 0 0 0 0	
System Greet Emotion ynQuestion whQuestion Accept	313 61 14 1 36 46	277 207 14 4 58 15 6	66 3 18 2 15 7	13 1 3 0 3 2 0	0 0 0 0 0	0 0 0 0 0 0	254 18 3 4 42 20 6	10 1 0 0 0 0	47 12 2 1 5 134	0 0 0 0 0	WRB 90 4 6 1 10 197 3	X 0 0 0 0 0	UNK 2254 659 342 457 329 328 104	: 256 176 25 17 30 18 17	, 316 72 26 10 32 41	337 1025 67 53 352 308 24	94 2 41 102 6 4	299 13 108 614 27 32 21 57	) 18 26 1 0 2 0	30 1 0 1 0 1	US 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0	WP\$ 0 0 0 0 0 1	MD* 1 0 0 0 0 0 0 0	
System Greet Emotion ynQuestion whQuestion Accept Bye	313 61 14 1 36 46 4	277 207 14 4 58 15 6 2	66 3 18 2 15 7 4	13 1 3 0 3 2 0 1	0 0 0 0 0 0	0 0 0 0 0 0	254 18 3 4 42 20 6 3	10 1 0 0 0 0 0	47 12 2 1 5 134 1	0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75	: 256 176 25 17 30 18 17	, 316 72 26 10 32 41 23	337 1025 67 53 352 308 24 16	94 2 41 102 6 4 7	299 13 108 614 27 32 21 57	) 18 26 1 0 2 0	30 1 0 1 0 1 0	US 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0	WP\$ 0 0 0 0 1 0 0	MD* 1 0 0 0 0 0 0 0	
System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	313 61 14 1 36 46 4 2	277 207 14 4 58 15 6 2 8 14	66 3 18 2 15 7 4 0	13 1 3 0 3 2 0 1 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	254 18 3 4 42 20 6 3 12	10 1 0 0 0 0 0 0	47 12 2 1 5 134 1 0	0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187	: 256 176 25 17 30 18 17 11	, 316 72 26 10 32 41 23 12	337 1025 67 53 352 308 24 16	94 2 41 102 6 4 7 2	299 13 108 614 27 32 21 57 15	) 18 26 1 0 2 0 1 0	30 1 0 1 0 1 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0	WP\$ 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0 0 0 0 1	
System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	313 61 14 1 36 46 4 2 6 54	277 207 14 4 58 15 6 2 8 14	660 318 22 155 7 4 0 0 2	13 1 3 0 3 2 0 1 1 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	254 18 3 4 42 20 6 3 12	10 1 0 0 0 0 0 0 0	47 12 2 1 5 134 1 0 4	0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 2 3 4	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68	: 256 176 25 17 30 18 17 11 20	, 316 72 26 10 32 41 23 12 16 5	337 1025 67 53 352 308 24 16 109	94 2 41 102 6 4 7 2 3	299 13 108 614 27 32 21 57 15 8	) 18 26 1 0 2 0 1 0 0	30 1 0 1 0 1 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0	WP\$ 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0 0 0 0 1 0	
System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	313 61 14 1 36 46 4 2 6 54	277 207 14 4 58 15 6 2 8 14	66 3 18 2 15 7 4 0 2 1 3	13 1 3 0 3 2 0 1 1 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	254 18 3 4 42 20 6 3 12 9	10 1 0 0 0 0 0 0 0 0	47 12 2 1 5 134 1 0 4 2	0 0 0 0 0 0 0 0	WRB 90 4 6 1 10 197 3 2 3 4 0 0	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68 96	: 256 176 25 17 30 18 17 11 20 3	, 316 72 26 10 32 41 23 12 16 5	337 1025 67 53 352 308 24 16 109 18 31	94 2 41 102 6 4 7 2 3 2	299 13 108 614 27 32 21 57 15 8 7	) 18 26 1 0 2 0 1 0 0 0 0	30 1 0 1 0 1 0 0 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WP\$ 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0 0 0 1 0 0 0	
System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	313 61 14 1 36 46 4 2 6 54 15	277 207 14 4 58 15 6 2 8 14 4	66 3 18 2 15 7 4 0 2 1 3 0	13 1 3 0 3 2 0 1 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	254 18 3 4 42 20 6 3 12 9	10 1 0 0 0 0 0 0 0 0	47 12 2 1 5 134 1 0 4 2 2	0 0 0 0 0 0 0 0 0	90 4 6 1 10 197 3 2 3 4 0 5	X 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UNK 2254 659 342 457 329 328 104 75 187 68 96 52	: 256 176 25 17 30 18 17 11 20 3 14	, 316 72 26 10 32 41 23 12 16 5 20	. 337 1025 67 53 352 308 24 16 109 18 31	94 2 41 102 6 4 7 2 3 2 2	EM2 299 13 108 614 27 32 21 57 15 8 7 10 8	) 18 26 1 0 2 0 1 0 0 0 0 0	30 1 0 1 0 1 0 0 0 0 0	LS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$ 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# 0 2 0 0 0 0 0 0 0 0 0	WP\$ 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	MD* 1 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0	

Figure B.5: POS Counts with Emoticons Separated into Two Groups

## APPENDIX C: CONFUSION MATRICES

This appendix contains confusion matrices for selected experiments. These are separated by specific emotion tagging schemes and experiment numbers as found in the caption of each table.

Figures C.1 through C.10 show the results of corresponding experiment runs with emoticons unrecognized (tagged as "UNK").

Using Actua						ion	tion			/:5 /	/								
/	Sign	Jernerit Syl	Sell Cie	at Emot	Jon VIO	Pesti	Mestion Acc	SQ ANG	EMP	deis Corti	Vine. Seile	y Ansi	net narres	Clarif	y Othe	Precision	Recall	F-score	Overall Accuracy
Statement	301	4	4	11	10	4	6	6	13	11	6	3	2	2	1	0.7839	0.8853	0.8315	85.41%
System	1	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9964	0.9821	0.9892	
Greet	14	0	118	2	0	0	0	1	0	0	0	1	0	0	0	0.8676	0.9593	0.9112	
Emotion	2	0	0	97	0	0	0	0	1	1	0	0	0	0	0	0.9604	0.8584	0.9065	
ynQuestion	4	1	1	0	43	6	0	0	1	0	1	0	0	0	0	0.7544	0.7288	0.7414	
whQuestion	1	0	0	0	6	47	0	0	1	0	0	0	0	0	0	0.8545	0.8246	0.8393	
Accept	6	0	0	1	0	0	12	0	0	0	0	2	0	0	0	0.5714	0.5714	0.5714	
Bye	1	0	0	1	0	0	0	18	1	0	0	0	0	0	0	0.8571	0.7200	0.7826	
Emphasis	2	0	0	1	0	0	1	0	5	0	0	0	0	0	0	0.5556	0.2174	0.3125	
Continuer	1	0	0	0	0	0	0	0	0	4	0	1	0	1	0	0.5714	0.2353	0.3333	
Reject	6	0	0	0	0	0	1	0	1	1	3	0	1	0	0	0.2308	0.3000	0.2609	
yAnswer	0	0	0	0	0	0	1	0	0	0	0	5	0	0	0	0.8333	0.4167	0.5556	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1.0000	0.4000	0.5714	
01	_	_	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	0.0000	undef	
Clarify	0	0	U	U	U	O.													
Other Using Chea	1 up PC	0 OS tags	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5000	0.5000	0.5000	
Other	1 up PC	0 OS tags	0	0	0	0	0	0	0	0	0	0	0	0		0.5000			
Other Using Chea	1 pp PC	0	o sen Gred	0 Emoi	O VION	0 pestion	0 Nestion	O O	0 Emp	0 Conti	0 Reign	0 VARS	O TARSY	O Clarif		0.5000 Precision	0.5000 Recall	0.5000 F-score	
Other Using Chea	1 pp PC si	OS tags	O S GREET GREET 13	0 Endi	0 VION	0 estion	0 Auestion Acco	0 8 8 8 8 1	Empl Empl	0 Nasis Conti	0 Reight	O VANS	O TATES	O Clariff	d Other	0.5000 Precision 0.8735	0.5000 Recall 0.7655	0.5000 <u>F-score</u> 0.8159	
Other Using Chea	1 sp PC	0 OS tags	0 S S S S S S S S S S S S S S S S S S S		O VION	0 estion o	0 Vive sion Page 1	O O	U Emil	0 Continues of the cont	0 Reign	O ARTS	O TARSY	O Clarif	Other 1 0	0.5000 Precision 0.8735 0.9893	0.5000 Recall 0.7655 0.9893	0.5000 F-score 0.8159 0.9893	
Other Using Chea	1 pp PC signal street s	OS tags	O S GREET GREET 13		0 VION	O O O O	0 Duesion Pccco	0 8 8 8 8 1	Upper 3 0 0	0 Continue of the continue of	0 Reight	O VARS	O TATES	O Chair	Other 1 0 0	0.5000 Precision 0.8735	0.5000 Recall 0.7655	0.5000 <u>F-score</u> 0.8159	
Other Using Chea	1 pp PC 297 3 5 13	0 OS tags OS tags I 1 277	0 5 13 0 117 1		0	0 estion o	0  Duesion  Reco  5  0  0		U Emil	0  Continues of the con	0  Ruet  Reight  5  0	0 VARIS		O Caith	0 0 0 0	0.5000 Precision 0.8735 0.9893	0.5000 Recall 0.7655 0.9893	0.5000 F-score 0.8159 0.9893 0.9141 0.9057	
Other Using Chea Statement System Greet Emotion	1 pp PC signal street s	0 0S tage 0S tage 1 1 277 0	0 S S Cycle 13 0 117			O O O O	0 Duesion Pccco	0 8 8 8 0 0 0	Upper 3 0 0	0 Continue of the continue of	0  order	O VARS	O CARTON CARTON	O Chair	Other 1 0 0	0.5000 Precision 0.8735 0.9893 0.9512	0.5000 Recall 0.7655 0.9893 0.8797	0.5000 F-score 0.8159 0.9893 0.9141	
Other Using Chea Statement System Greet Emotion ynQuestion	1 pp PC 297 3 5 13	0 0S tags 1 277 0 2	0 5 13 0 117 1	0	0	O O O O	0  Duesion  Reco  5  0  0		0	0  Continues of the con	0 0 0 0 0 0	0 VARIS		O O O O	0 0 0 0	0.5000 Precision 0.8735 0.9893 0.9512 0.8496	0.5000 Recall 0.7655 0.9893 0.8797 0.9697	0.5000 F-score 0.8159 0.9893 0.9141 0.9057	
Other Using Chea Statement System Greet Emotion ynQuestion	1 pp PC 297 3 5 13 14	0 OS tage 1 277 0 2	0 5 13 0 117 1	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O C C WITH O O O O O O	0  Description  De	0 0 1 0 0 0	0 Upred 3 0 0 0 1 0		O O O O	0 VARE	O O O O	O O O O	0 0 0 0 0 0	0.5000 Precision 0.8735 0.9893 0.9512 0.8496 0.6441	0.5000 Recall 0.7655 0.9893 0.8797 0.9697 0.6909	0.5000 F-score 0.8159 0.9893 0.9141 0.9057 0.6667	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion	1 sp PC 297 3 5 13 14 4	0 OS tage 1 1 277 0 0 2 0 0	0 S S S S S S S S S S S S S S S S S S S	0 0 0 96 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 estion 0 0 0 0 6 48	O D D O O			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O O O O O		0 0 0 0 0 0 0	0.5000 Precision 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421	0.5000 Recall 0.7655 0.9893 0.8797 0.9697 0.6909 0.8889	0.5000 F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept	1 ap PC 297 3 5 13 14 4 7	0 OS tage	0 S S S S S S S S S S S S S S S S S S S	0	0 0 11 0 1 1 0 38 4 0	0 0 0 0 6 <b>48</b> 0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O O O O O	0 VARES 0 0 0 0 0 0	O O O O O O O O O O O O O O O O O O O	O Continue of the continue of	1 0 0 0 0 0	0.5000 Precision 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238	0.5000 Recall 0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500	0.5000 F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366	
Other Using Chea  Statement System Greet Emotion ynQuestion whQuestion Accept Bye	1 ap PC 297 3 5 13 14 4 7 5	0 0 0 0 0 0 0	0 13 0 117 1 0 1 0	0 1 0 0 96 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 6 <b>48</b> 0	0	0 0 1 0 0 0 0 0	0 United 3 0 0 0 1 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0	0 2 0 0 0 0 0 0	O O O O O O O	0 Article 0 0 0 0 0 0 0	0 0 0 0 0 0 0		1 0 0 0 0 0 0	0.5000 Precision 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600	0.5000 Recall 0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500 0.9048	0.5000 F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	1 sp PC six 3 5 13 14 4 7 5 13	0 0 0 0 0 0 0	0 13 0 117 1 0 1 0 1 0	0 0 0 0 0 0 1	0 0 1 0 0 1 0 0 1 0 0 0 1 0 0 0 1	0 0 0 0 0 6 48 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 19 1	0 United 3 0 0 0 1 0 0 1 0 5	0 2 0 0 0 0 0 0 0	0 0 1	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5000  Precision 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174	0.5000 Recall 0.7655 0.9893 0.8797 0.6909 0.8889 0.5500 0.9048 0.5000	0.5000  F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	1 sp PC see 297 3 5 13 14 4 7 5 13 11	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	0 0 0 0 0 0 0 1 1 1	0 0 1 0 0 1	0 0 0 0 0 6 48 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 19 1 0 0	0 Unit 3 0 0 0 1 0 0 5 0	0 0 0 0 0 0 1 4	0 0 0 0 0 0 1 1	0 0 0 0 0 0 0 0 0 0	O O O O O O O O O O O O O O O O O O O		1 0 0 0 0 0 0 0	0.5000  Precision 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353	0.5000 Recall 0.7655 0.9893 0.8797 0.6909 0.8889 0.5500 0.9048 0.5000 0.4000	0.5000  F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	1 sp PC size 297 3 5 13 14 4 7 5 13 11 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	0 0 1 0 0 96 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 19 1	0 0 3 0 0 1 0 0 5 0	0 0 0 0 0 1 4 0 0	0 0 0 0 0 0 1 1 2	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0	0.5000  Precision 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000	0.5000 Recall 0.7655 0.9893 0.8797 0.6909 0.8889 0.5500 0.9048 0.5000 0.4000 0.2222	0.5000  F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	1 sp PC 297 3 5 13 14 4 7 5 13 11 8 3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	0 0 0 96 0 0 0 0 1 1 0	0 0 111 0 0 38 4 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 3 3 0 0 1 1 0 0 5 0	0 0 0 0 0 1 4 0 1	0 0 0 0 0 0 1 1 2 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5000  Precision 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000 0.3333	0.5000  Recall 0.7655 0.9893 0.8797 0.6909 0.8889 0.5500 0.9048 0.5000 0.4000 0.2222 0.8000	0.5000  F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105 0.4706	<u>Overall A</u> 84.59%

Figure C.1: Experiment Run 5: Emoticons Unrecognized

Using Actu		S tags	$\overline{}$	zi Emoi	Jon Villa	estion	lue stion	eri / e	Emp	Rasis Conti	Deiles,	YARSI	net nares	det Clarify	Other				Overall
,	/ S <sup>X</sup>	/5	/ 👊	/400/	141	M	/ PC)	er Ale	/ 4S^^	/ O`/	/ & /	1/2/	/4K/	\ 0,0°/	\Q\(\)	Precision	<u>Recall</u>	F-score	<b>Accuracy</b>
Statement	282	3	5	15	11	6	9	4	10	7	14	8	3	6	0	0.7363	0.8650	0.7955	83.81%
System	0	249	1	0	0	0	0	0	0	0	0	0	0	0	0	0.9960	0.9881	0.9920	
Greet	12	0	136	2	0	1	0	0	0	1	0	0	0	0	0	0.8947	0.9444	0.9189	
Emotion	3	0	1	93	0	0	0	0	0	0	0	0	0	0	0	0.9588	0.8378	0.8942	
ynQuestion	6	0	1	0	36	4	0	0	0	0	0	1	0	0	0	0.7500	0.7059	0.7273	
whQuestion	3	0	0	1	1	38	0	0	0	0	0	0	0	0	0	0.8837	0.7755	0.8261	
Accept	9	0	0	0	0	0	17	0	0	0	0	3	0	0	0	0.5862	0.6296	0.6071	
Bye	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	1.0000	0.7500	0.8571	
Emphasis	4	0	0	0	2	0	0	0	5	0	0	1	0	0	0	0.4167	0.3125	0.3571	
Continuer	6	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0.3000	0.2727	0.2857	
Reject	1	0	0	0	1	0	0	0	1	0	4	0	3	0	0	0.4000	0.2222	0.2857	
yAnswer	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1.0000	0.2353	0.3810	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1.0000	0.2500	0.4000	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	0.0000	undef	
		1	- 1	- 1	-	- 1			- 1		~								
Other Using Chea	•		0	0	0	0	0	0	0	0	0	0	0	0	4	1.0000	1.0000	1.0000	
	ap PC	S tags	0	0		0	0		0	0	/\$ /								Overall A
Using Chea	ap PC		O Significant	o st find	ion vindi	0 gestion	0 Mestion	ST S	0 Emil	0 Contil	nuei pelec	VARSI	nAns <sup>1</sup>	det Clarif	Other	Precision	Recall	F-score	
Using Chea	ap PC	OS tags	O S Serri Gree 4	0 Endi	ion viol	0 gestion 3	0 Duesion RCC 8	St. St. A	U Emili	0 Resis	nuei Reier 12	ANG!	nary 2	dain 6	Other 1	Precision 0.7374	Recall 0.8528	<u>F-score</u> 0.7909	
Using Chea	ap PC	OS tags	o S S S S S S S S S S	0 zi trilii 16 0	yndi 11 0	0 sesion 3	0 Duesion 8	80 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	0 £mil	0  nasis  conti	Reject 12 0	VARSI 8 0	nAnsy 2 0	dain 6	Other 1 0	Precision 0.7374 0.9880	Recall 0.8528 0.9841	F-score 0.7909 0.9861	
Using Chea	عبر PC چ <sup>رو</sup> <b>278</b> 2	OS tags  OS tags  A  248	0 S S Cyce 4 1 136	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0	0 estion 3 0 1	0  Jue Signi		0 (Lind) 13 0 0	0 Conti	Relection of the control of the cont	A PARIST	range of the control	Cair Cair o	Office of the contract of the	Precision 0.7374 0.9880 0.9252	Recall 0.8528 0.9841 0.9444	F-score 0.7909 0.9861 0.9347	
Statement System Greet Emotion	278 278 2 9	OS tags  OS tags  4  248  0 0	0 6 4 1 136 2	0 2 4 10 0 0 94	11 0 0 0	0  section  incomparison  3  0  1  0	0  Nuestion  RCC  8  0  0  1	4 0 0 0	0 Lind 13 0 0 0	0 Conii 7 0 1 0	nue cereta de la composición della composición d	NATE   NATE	rpress	daily Claiff	Office 1 0 0 0 1	Precision	Recall 0.8528 0.9841 0.9444 0.8468	F-score 0.7909 0.9861 0.9347 0.8785	
Statement System Greet Emotion ynQuestion	278 29 4	OS tags  OS tags  OS tags  OS tags	0 6 4 1 136 2	0 2 2 4 10 0 0 0 94 0	11 0 0 0 35	0 sesion of the	0  Duesion  Reco	4 0 0 0	0	O COMING TO D D D D D D D D D D D D D D D D D D	12 0 0 0	8 0 0 1	PARENTE PARENT	Clair 6 0 0	Otne 1 0 0 0	Precision	Recall 0.8528 0.9841 0.9444 0.8468 0.6863	F-score 0.7909 0.9861 0.9347 0.8785 0.7216	
Statement System Greet Emotion ynQuestion whQuestion	278 29 4 6	0S tags  248  0  0  0  0	0 S S S S S S S S S S S S S S S S S S S	0	11 0 0 0 35 3	0 sesion 0 1 0 3 3 42	0  According to the control of the c	4 0 0 0 0	0 13 0 0 0 0	0 Continue C	12 0 0 0 0	7 PHO 1 1 1 0	2 0 0 0 0	Clair G 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8528 0.9841 0.9444 0.8468 0.6863 0.8571	F-score 0.7909 0.9861 0.9347 0.8785 0.7216 0.8485	
Statement System Greet Emotion ynQuestion whQuestion Accept	278 278 2 9 4 6 4	0S tags  248  0  0  0  0	0 S S S S S S S S S S S S S S S S S S S	0 1 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 0 35 3 0	0 8 8 8 10 0 1 0 0 3 42 0	0   1   0   16   16   16   16   16   16	4 0 0 0 0 0	0	0 CONT	12 0 0 0 0	8 0 0 1 1 0 2	2 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8528 0.9841 0.9444 0.8468 0.6863 0.8571 0.5926	F-score 0.7909 0.9861 0.9347 0.8785 0.7216 0.8485 0.5926	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	278 278 2 9 4 6 4	9S tags 9	0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 0 35 3 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0   1   0   0   16   0	4 0 0 0 0 0 0	0 13 0 0 0 0 0 0	0	12 0 0 0 0 0 0	8 0 0 1 1 0 2	2 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8528 0.9841 0.9444 0.8468 0.6863 0.8571 0.5926 0.7500	F-score 0.7909 0.9861 0.9347 0.8785 0.7216 0.8485 0.5926 0.8000	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	278 278 2 9 4 6 4 9 2	9S tags 9	0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 0 35 3 0 0	0 0 0 0 0	0 0 16 0 0	4 0 0 0 0 0 0 0	0 Lind 13 0 0 0 0 0 0 0 0	0	12 0 0 0 0 0 0	8 0 0 1 1 0 2 0	2 0 0 0 0 0 0	6 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7374  0.9880  0.9252  0.9126  0.7609  0.8400  0.5926  0.8571  0.2500	Recall 0.8528 0.9841 0.9444 0.8468 0.6863 0.8571 0.5926 0.7500 0.1250	F-score 0.7909 0.9861 0.9347 0.8785 0.7216 0.8485 0.5926 0.8000 0.1667	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	278 278 2 9 4 6 4	9S tags 9	0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 0 35 3 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0   1   0   0   16   0	4 0 0 0 0 0 0	0 13 0 0 0 0 0 0 0	0	12 0 0 0 0 0 0	8 0 0 1 1 0 2	2 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8528 0.9841 0.9444 0.8468 0.6863 0.8571 0.5926 0.7500	F-score 0.7909 0.9861 0.9347 0.8785 0.7216 0.8485 0.5926 0.8000	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	Signature   Sign	0S tags  248  0  0  0  0  0  0  0  0  0	0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 0 35 3 0 0 1 0 0	0 3 0 1 0 0 0 0 0 0	0 0 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0	0 13 0 0 0 0 0 0 0 2 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0	8 0 0 1 1 0 2 0 1 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		1 0 0 0 1 0 0 0 0 0 0 0	0.7374 0.9880 0.9252 0.9126 0.7609 0.8400 0.5926 0.8571 0.2500 0.3000 0.4545	Recall 0.8528 0.9841 0.9444 0.8468 0.6863 0.8571 0.5926 0.7500 0.1250 0.2727 0.2778	F-score 0.7909 0.9861 0.9347 0.8785 0.7216 0.8485 0.5926 0.8000 0.1667 0.2857 0.3448	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	2788 2 9 4 6 6 4 9 2 4 6 6 1 0	0S tags 4 248 0 0 0 0 0 0 0 0 0 0	0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 0 35 3 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0 0 0 0 0 0 0 0 1 1 0 0 0 1 1 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 13 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0	8 0 0 1 1 0 2 0 1 0 0 4	2 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7374 0.9880 0.9252 0.9126 0.7609 0.8400 0.5926 0.8571 0.2500 0.3000 0.4545 0.8000	Recall 0.8528 0.9841 0.9444 0.8468 0.6863 0.8571 0.5926 0.7500 0.1250 0.2727 0.2778 0.2353	F-score 0.7909 0.9861 0.9347 0.8785 0.7216 0.8485 0.5926 0.8000 0.1667 0.2857 0.3448 0.3636	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	Signature   Sign	0S tags 4 248 0 0 0 0 0 0 0 0 0	0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 0 35 3 0 0 1	0 3 0 1 0 0 0 0 0 0	0 0 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0	0 13 0 0 0 0 0 0 0 2 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0	8 0 0 1 1 0 2 0 1 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0	1 0 0 0 1 0 0 0 0 0 0 0	0.7374 0.9880 0.9252 0.9126 0.7609 0.8400 0.5926 0.8571 0.2500 0.3000 0.4545	Recall 0.8528 0.9841 0.9444 0.8468 0.6863 0.8571 0.5926 0.7500 0.1250 0.2727 0.2778	F-score 0.7909 0.9861 0.9347 0.8785 0.7216 0.8485 0.5926 0.8000 0.1667 0.2857 0.3448	<u>Overall A</u> 83.33%

Figure C.2: Experiment Run 10: Emoticons Unrecognized

Using Actu			et Line	Jion Mari	estion	Jestion Poce	\$ 84°	Emp	Coni	Reject Property	VANSV	nAnc	onet Clarity	Othe	Precision	Recall	F-score	Overall Accuracy
Statement	<b>265</b> 6	8	21	11	5	5	4	8	9	11	3	4	0	0	0.7361	0.8833	0.8030	
System	1 235	2	0	0	0	0	0	0	0	0	0	0	0	0	0.9874	0.9711	0.9792	03.3070
Greet	8 0	119	1	1	0	0	2	0	0	0	0	0	0	0	0.9084	0.9084	0.9084	
Emotion	3 0	0	90	0	0	1	0	0	0	0	0	0	0	0	0.9574	0.7826	0.8612	
ynQuestion	9 1	1	0	42	3	0	0	0	0	0	0	0	0	0	0.7500	0.6885	0.7179	
whQuestion	2 0	0	1	5	40	0	0	1	0	0	0	0	0	0	0.8163	0.8333	0.8247	
Accept	6 0	0	1	0	0	6	0	0	1	1	0	0	0	0	0.4000	0.3750	0.3871	
Bye	0 0	0	0	0	0	0	12	0	0	0	0	0	0	0	1.0000	0.6667	0.8000	
Emphasis	2 0	1	1	0	0	0	0	9	0	0	0	0	0	0	0.6923	0.4500	0.5455	
Continuer	2 0	0	0	2	0	0	0	1	6	0	0	0	0	0	0.5455	0.3529	0.4286	
Reject	1 0	0	0	0	0	1	0	1	0	5	0	1	0	0	0.5556	0.2778	0.3704	
yAnswer	0 0	0	0	0	0	3	0	0	1	0	6	0	0	0	0.6000	0.6667	0.6316	
nAnswer	1 0	0	0	0	0	0	0	0	0	1	0	4	0	0	0.6667	0.4444	0.5333	
Clarify	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	undef	undef	
Other	0 0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.0000	1.0000	1.0000	
Other Using Chea	ap POS tag	s														1.0000	1.0000	
	ap POS tag	s														1.0000		Overall A
	ap POS tag	s Stern Green			estion who	Jestion Acce			idesis Conti		yAnsy 4	ner ner			Precision 0.7211	Recall 0.8533	<u>F-score</u> 0.7817	
Using Chea	ap POS tag	s Serior	24 0	Jidi Vicilia 16	estion who 6	A 0	Mr. Me	######################################	ges on the continuous of the c	geiec'	YARS <sup>V</sup> 4 0	nani	O O	Othe	Precision	Recall	F-score	
Using Chea	ap POS tag	5 2 122	24 0 0	Jiton Vinoli Vin	Still No.	design A	4 0 1		g 0 0	Release of the control of the contro	4 0 0	nAnii NAnii 3 0	Caire	Office O	Precision 0.7211 0.9835 0.9385	Recall 0.8533 0.9835 0.9313	F-score 0.7817 0.9835 0.9349	
Statement System Greet Emotion	p POS tag span	5 2 122	24 0 0 89	16 0 1 0	stion of the state	PCCE 4 0 0 1	4 0 1 0	######################################	g 9 0 0	geige of o	4 0 0	nAnti nAnti 3 0 0	Cair	0 0 0 0 0	Precision 0.7211 0.9835 0.9385 0.9368	Recall 0.8533 0.9835 0.9313 0.7739	F-score 0.7817 0.9835 0.9349 0.8476	
Statement System Greet Emotion ynQuestion	ap POS tag State Post 256 4 2 238 6 0 5 0 11 0	5 2 122 0	24 0 0 89	16 0 1 0 36	6 0 0 1	PCC	4 0 1 0 0	######################################	g O O O O	geech	4 0 0 0	7,A7,2,3 0 0 0	O O O O	0 Office	Precision	Recall 0.8533 0.9835 0.9313 0.7739 0.5902	F-score 0.7817 0.9835 0.9349 0.8476 0.6545	
Statement System Greet Emotion ynQuestion	256 4 2 238 6 0 5 0 11 0 4 0	5 2 122 0 1	24 0 0 89 0	16 0 1 0 36 7	6 0 0 1 40	A O O O O	4 0 1 0 0	### Employed	9 0 0 0	ger	4 0 0 0 0	7,A,TE	O O O O O	0 0 0 0 0	Precision	Recall 0.8533 0.9835 0.9313 0.7739 0.5902 0.8333	F-score 0.7817 0.9835 0.9349 0.8476 0.6545 0.7843	
Statement System Greet Emotion ynQuestion whQuestion Accept	ap POS tag State Post 256 4 2 238 6 0 5 0 11 0 4 0 7 0	5 2 122 0 1 0	24 0 0 89 0 1	16 0 1 0 36 7 0	6 0 0 1 40	4 0 0 0 1 0 0 7	4 0 1 0 0 0	### Company   Co	9 0 0 0 0 0	gerect Reference of the second	4 0 0 0 0 0 1 2	3 0 0 0 0 0	O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8533 0.9835 0.9313 0.7739 0.5902 0.8333 0.4375	F-score 0.7817 0.9835 0.9349 0.8476 0.6545 0.7843 0.4118	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	ap POS tag 256 4 2 238 6 0 5 0 11 0 4 0 7 0 0 0	5 2 122 0 1 0 0	24 0 0 89 0 1 0	16 0 1 0 36 7 0	6 0 0 0 1 40 0	4 0 0 0 1 0 0 0 7 0 0	4 0 1 0 0 0 0 0	######################################	9 0 0 0 0 0	9 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0	3 0 0 0 0 0 0	O O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8533 0.9835 0.9313 0.7739 0.5902 0.8333 0.4375 0.7222	F-score 0.7817 0.9835 0.9349 0.8476 0.6545 0.7843 0.4118 0.8387	<u>Overall A</u> 82.49%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	ap POS tag State Post 256 4 2 238 6 0 5 0 11 0 4 0 7 0 0 0 2 0	5 2 122 0 1 0 0 0	24 0 0 89 0 1 0 0	16 0 1 0 36 7 0	6 0 0 1 40 0 0	4 0 0 0 1 0 0 7 0	4 0 1 0 0 0 0 0 0	### Company   Co	9 0 0 0 0 0 0	9 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8533 0.9835 0.9313 0.7739 0.5902 0.8333 0.4375 0.7222 0.3500	F-score 0.7817 0.9835 0.9349 0.8476 0.6545 0.7843 0.4118 0.8387 0.4516	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	ap POS tag  256 4  2 238  6 0  5 0  11 0  7 0  0 0  2 0  4 0	5 2 122 0 1 0 0 0	24 0 0 89 0 1 0 0	16 0 1 0 36 7 0 0	6 0 0 0 1 40 0 0	4 0 0 0 1 0 0 7 0 0	4 0 1 0 0 0 0 0 0	### Company   Co	9 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0	4 0 0 0 0 1 2 0 0	7, Anti-	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7211  0.9835  0.9385  0.9368  0.7347  0.7407  0.3889  1.0000  0.6364  0.5455	Recall 0.8533 0.9835 0.9313 0.7739 0.5902 0.8333 0.4375 0.7222 0.3500 0.3529	F-score 0.7817 0.9835 0.9349 0.8476 0.6545 0.7843 0.4118 0.8387 0.4516	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap POS tag  256 4  2 238  6 0  5 0  11 0  7 0  0 0  2 0  4 0  2 0	5 2 122 0 1 0 0 0 0	24 0 0 89 0 1 0 0	16 0 1 0 36 7 0 0 0	6 0 0 0 1 40 0 0 0 1	4 0 0 0 1 0 0 0 0 0	4 0 1 0 0 0 0 0 0 0	11 0 0 0 0 0 0 7 0	9 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 7	4 0 0 0 0 0 1 2 0 0 0	7 price 7 pric	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7211  0.9835  0.9385  0.9368  0.7347  0.7407  0.3889  1.0000  0.6364  0.5455  0.5385	Recall	F-score 0.7817 0.9835 0.9349 0.8476 0.6545 0.7843 0.4118 0.8387 0.4516 0.4286 0.4516	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap POS tag  256 4  2 238  6 0  5 0  11 0  4 0  7 0  0 0  2 0  4 0  2 0  0 0	5 2 122 0 1 0 0 0 0	24 0 0 89 0 1 0 0 0	16 0 1 0 36 7 0 0 0 0	6 0 0 0 1 40 0 0 0 0	1 0 0 0 0 0 1 3	4 0 1 0 0 0 0 0 0 0 0 0	11 0 0 0 0 0 0 7 0 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7211 0.9835 0.9385 0.9368 0.7347 0.7407 0.3889 1.0000 0.6364 0.5455 0.5385 0.3333	Recall	F-score 0.7817 0.9835 0.9349 0.8476 0.6545 0.7843 0.4118 0.8387 0.4516 0.4286 0.4516 0.2667	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer nAnswer	ap POS tag  256 4  2 238  6 0  5 0  11 0  7 0  0 0  2 0  4 0  2 0  1 0	5 2 122 0 1 0 0 0 0 0 0	24 0 0 89 0 1 0 0 0 0	16 0 1 0 36 7 0 0 0 0 0	6 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 1 0 0 0 0 1 3 0 0 0 0 0 0 0 0 0 0	4 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 0 0 0 0 7 0 0 1	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7211  0.9835  0.9385  0.9368  0.7347  0.7407  0.3889  1.0000  0.6364  0.5455  0.5385  0.3333  0.7143	Recall	F-score  0.7817 0.9835 0.9349 0.8476 0.6545 0.7843 0.4118 0.8387 0.4516 0.4286 0.4516 0.2667 0.6250	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap POS tag  256 4  2 238  6 0  5 0  11 0  4 0  7 0  0 0  2 0  4 0  2 0  0 0	5 2 122 0 1 0 0 0 0	24 0 0 89 0 1 0 0 0	16 0 1 0 36 7 0 0 0 0	6 0 0 0 1 40 0 0 0 0	1 0 0 0 0 0 1 3	4 0 1 0 0 0 0 0 0 0 0 0	11 0 0 0 0 0 0 7 0 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7211 0.9835 0.9385 0.9368 0.7347 0.7407 0.3889 1.0000 0.6364 0.5455 0.5385 0.3333	Recall	F-score 0.7817 0.9835 0.9349 0.8476 0.6545 0.7843 0.4118 0.8387 0.4516 0.4286 0.4516 0.2667	

Figure C.3: Experiment Run 15: Emoticons Unrecognized

Using Actu		S tags		et Em	Jion yndi	estion	Que stion	igt / bye	Empl	lasis Conti	Relect	3. VANS	nAns	onet Clarify	Othe	<u> </u>			<u>Overall</u>
	/50	/5		/ 4	<u> </u>	111	/ PU/	/ X /	/ W/	/ 00/	100/	/ 4r/	14	/ 04/			<u>Recall</u>	F-score	Accuracy
Statement	282	4	8	17	10	4	8	5	13	9	6	2	1	0	1	0.7622	0.8952	0.8234	84.71%
System	2	256	1	0	0	0	0	0	0	0	0	0	0	0	0	0.9884	0.9846	0.9865	
Greet	11	0	131	4	0	1	0	1	0	1	1	0	0	0	0	0.8733	0.8973	0.8851	
Emotion	1	0	1	81	0	0	2	0	0	0	0	0	0	0	0	0.9529	0.7714	0.8526	
ynQuestion	2	0	2	0	37	1	0	0	1	0	0	0	0	0	0	0.8605	0.7400	0.7957	
whQuestion	2	0	0	0	3	38	0	0	0	0	0	0	0	0	0	0.8837	0.8636	0.8736	
Accept	5	0	0	1	0	0	15	0	1	0	3	0	0	0	0	0.6000	0.5556	0.5769	
Bye	1	0	1	0	0	0	1	13	0	0	0	0	0	0	0	0.8125	0.6842	0.7429	
Emphasis	2	0	2	1	0	0	0	0	11	0	1	0	0	0	0	0.6471	0.4074	0.5000	
Continuer	1	0	0	0	0	0	0	0	0	4	0	1	0	0	0	0.6667	0.2667	0.3810	
Reject	4	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0.2857	0.1333	0.1818	
yAnswer	1	0	0	1	0	0	1	0	0	0	0	6	0	0	0	0.6667	0.6000	0.6316	
nAnswer	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0.2500	0.5000	0.3333	
Clarify	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.0000	undef	undef	
O4lo																			
Other Using Chea	•			0	0	0	0	0	0	0	0	0	0	0	4	1.0000	0.8000	0.8889	
	ар РО	S tags	3																Our well A
Using Chea	ap PO	S tags	Seri Gre	et frus	Jilon VinO	Jestion wh	The stick	No. One	Emp	lasis Coni	nuet Reieco	Ansi VARS	ner nene	wei Claift	Othe	Precision	Recall	F-score	
Using Chea	ap PO حرافاً عرفاً	S tags	gen Gre	21 21	ation Vinal	estion who	Arcsion 8	\$\frac{1}{8}\frac{1}{8	ting 16	Jasis Coni	ruet Reier	yArish 3	ner nere	o Caite	Othe 3	<u>Precision</u> 0.7399	Recall 0.8762	<u>F-score</u> 0.8023	
Using Chea	ap PO	S tage	ern Gre	21 0	ation Of the state	pestion with 4	Diesion Rece 8	5 0	Emd 16 0	Conii 10	Reigis 5	Ansi VANSI 3	ner nere	Orality O	Other 3	Precision 0.7399 0.9884	Recall 0.8762 0.9846	F-score 0.8023 0.9865	
Using Chea	ap PO  276  2 6	S tags  S tags  S tags  4  256	9 1 131	21 0 2	Stion QU WOUNTER	phi 4 0 1	Diesion Acce	5 0	######################################	Continue of the continue of th	Department of the control of the con	3 0 0	narra 1 0 0	Oziffu O O	3 0 0	Precision 0.7399 0.9884 0.9291	Recall 0.8762 0.9846 0.8973	F-score 0.8023 0.9865 0.9129	
Statement System Greet Emotion	276 2 6	S tags  S tags  S tags  4  256  0 0	9 1 131	21 0 2 78	main and a second secon	pestion 4 0 1 0	Diedion De la Constantia de la Constanti	5 0 0	######################################	10 0 1	Rue Reservation of the second	3 0 0		Cairle O O O	3 0 0	Precision 0.7399 0.9884 0.9291 0.9398	Recall 0.8762 0.9846 0.8973 0.7429	F-score 0.8023 0.9865 0.9129 0.8298	
Statement System Greet Emotion ynQuestion	376 276 2 6	S tags  256  0  0	9 1 131 1	21 0 2 78 0	8 0 0 0 33	# 4 0 1 0 1 1	Design De	5 0 0	4 16 0 0 0 0 1	10 0 1 0	S O O O O	3 0 0 0	1 0 0 0 0	Caffred O	3 0 0 0	Precision 0.7399 0.9884 0.9291 0.9398 0.7674	Recall 0.8762 0.9846 0.8973 0.7429 0.6600	F-score 0.8023 0.9865 0.9129 0.8298 0.7097	
Statement System Greet Emotion ynQuestion whQuestion	276 2 6 2 6 3	S tags 256 0 0 0	9 1 131 1 0	21 0 2 78 0	8 0 0 0 33 9	4 0 1 0 1 37	Diesilon Naces 8 0 0 0 1	5 0 0 0	######################################	10 0 1 0 0 0	5 0 0 1 0	3 0 0 0 0	1 0 0 0 0 0 0 0	O O O O O	0 0 0 0 0 1 0	Precision 0.7399 0.9884 0.9291 0.9398 0.7674 0.7400	Recall 0.8762 0.9846 0.8973 0.7429 0.6600 0.8409	F-score 0.8023 0.9865 0.9129 0.8298 0.7097 0.7872	
Statement System Greet Emotion ynQuestion whQuestion Accept	3 7	S tags  Stags  4  256  0  0  0  0	9 1 131 1 0 0	21 0 2 78 0 1	8 0 0 0 33 9	4 0 1 0 1 37 0	Desiration 20	5 0 0 0 0	16 0 0 0 1 0 1	10 0 1 0 0 0	5 0 0 1 0 0 3	3 0 0 0 0 0		O O O O O	3 0 0 0 0 1 0	Precision 0.7399 0.9884 0.9291 0.9398 0.7674 0.7400 0.5862	Recall 0.8762 0.9846 0.8973 0.7429 0.6600 0.8409 0.6296	F-score 0.8023 0.9865 0.9129 0.8298 0.7097 0.7872 0.6071	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	276 2 6 2 6 3 7	S tags  S tags  4  256  0  0  0  0  0	9 1 131 1 0 0	21 0 2 78 0 1 0 0	8 0 0 0 0 33 9 0	4 0 1 0 1 37 0 0	8 0 0 0 1 0 0 17	5 0 0 0 0 0 0	######################################	10 0 0 0 0 0 0	5 0 0 0 0 3 0	3 0 0 0 0 0 1	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O O O O O O	3 0 0 0 0 1 0 0	Precision 0.7399 0.9884 0.9291 0.9398 0.7674 0.7400 0.5862 0.9333	Recall 0.8762 0.9846 0.8973 0.7429 0.6600 0.8409 0.6296 0.7368	F-score  0.8023 0.9865 0.9129 0.8298 0.7097 0.7872 0.6071 0.8235	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	276 2 6 2 6 3 7 0	S tags  S tags  4  256  0  0  0  0  0  0	9 1 131 1 0 0 1 2	21 0 2 78 0 1 0 0	8 0 0 0 33 9 0	4 0 1 0 1 37 0 0	1	5 0 0 0 0 0 0 0	16 0 0 0 1 0 1 0 8	10 0 0 0 0 0 0 0	5 0 0 1 0 0 3 0	3 3 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0	Precision  0.7399  0.9884  0.9291  0.9398  0.7674  0.7400  0.5862  0.9333  0.5333	Recall 0.8762 0.9846 0.8973 0.7429 0.6600 0.8409 0.6296 0.7368 0.2963	F-score  0.8023 0.9865 0.9129 0.8298 0.7097 0.7872 0.6071 0.8235 0.3810	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	276 2 6 2 6 3 7 0	S tags  4  256  0  0  0  0  0  0  0	9 1 131 1 0 0 1 2	21 0 2 78 0 1 0 0 2 0	8 0 0 0 33 9 0 0	## 4 4 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0	16 0 0 0 1 0 1 0 0 8 0	10 0 0 0 0 0 0 0 0	5 0 0 1 0 0 0 3 0 0	3 3 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8762 0.9846 0.8973 0.7429 0.6600 0.8409 0.6296 0.7368 0.2963 0.2667	F-score  0.8023 0.9865 0.9129 0.8298 0.7097 0.7872 0.6071 0.8235 0.3810 0.3810	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	276 2 6 2 6 2 6 3 7 0	S tags  4  256  0  0  0  0  0  0  0  0  0	9 1 131 1 0 0 1 2 0	21 0 2 78 0 1 0 0 0 2 0 0	8 0 0 0 33 9 0 0 0	4 0 0 1 1 37 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0	16 0 0 0 1 1 0 0 8 0 1 1	10 0 0 0 0 0 0 0 0 0	5 0 0 1 0 0 0 3 0 0	3 0 0 0 0 0 0 1 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7399  0.9884  0.9291  0.9398  0.7674  0.7400  0.5862  0.9333  0.5333  0.6667  0.2857	Recall	F-score  0.8023 0.9865 0.9129 0.8298 0.7097 0.7872 0.6071 0.8235 0.3810 0.3810 0.1818	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	276 2 6 2 6 3 7 0 3	S tags 4 256 0 0 0 0 0 0 0 0 0	9 1 131 1 0 0 1 2 0 0	21 0 2 78 0 1 0 0 0 0 2	8 0 0 0 33 9 0 0 0	4 0 1 1 0 0 0 0 0 0 0 0 1 1	1	5 0 0 0 0 0 0 0 0 0 0 0	16 0 0 0 1 0 1 0 8 0 0	10 0 0 0 0 0 0 0 0 0 0	5 0 0 1 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 1 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7399 0.9884 0.9291 0.9398 0.7674 0.7400 0.5862 0.9333 0.5333 0.6667 0.2857 0.4444	Recall	F-score  0.8023 0.9865 0.9129 0.8298 0.7097 0.7872 0.6071 0.8235 0.3810 0.3810 0.1818 0.4211	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	276 2 6 2 6 3 7 0 3 1 4 2 3	S tags 4 256 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 131 131 1 2 0 0 0 0 0	21 0 2 78 0 1 0 0 0 2 0 0 0 1 0 0	8 0 0 0 33 9 0 0 0 0	4 0 1 1 37 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 0 0 1 0 1 0 8 0 1 0 0	10 0 0 0 0 0 0 0 0 0 0	5 0 0 1 0 0 0 3 0 0 0 0 2	3 0 0 0 0 0 0 1 0 0 4	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7399  0.9884  0.9291  0.9398  0.7674  0.7400  0.5862  0.9333  0.5333  0.6667  0.2857  0.4444  0.1250	Recall	F-score  0.8023 0.9865 0.9129 0.8298 0.7097 0.7872 0.6071 0.8235 0.3810 0.3810 0.1818 0.4211 0.2000	<u>Overall A</u> 82.88%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	276 2 6 2 6 3 7 0 3	S tags 4 256 0 0 0 0 0 0 0 0 0	9 1 131 1 0 0 1 2 0 0	21 0 2 78 0 1 0 0 0 0 2	8 0 0 0 33 9 0 0 0	4 0 1 1 0 0 0 0 0 0 0 0 1 1	1	5 0 0 0 0 0 0 0 0 0 0 0	16 0 0 0 1 0 1 0 8 0 0	10 0 0 0 0 0 0 0 0 0 0	5 0 0 1 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 1 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7399 0.9884 0.9291 0.9398 0.7674 0.7400 0.5862 0.9333 0.5333 0.6667 0.2857 0.4444	Recall	F-score  0.8023 0.9865 0.9129 0.8298 0.7097 0.7872 0.6071 0.8235 0.3810 0.3810 0.1818 0.4211	

Figure C.4: Experiment Run 20: Emoticons Unrecognized

Using Actu		S tags		get fri	dion ynd	gestion	Que stion	gt Engl	Bye Bye	- Ori	Rejet Peiet	y Arres	net nere	uet Other	Clait	4			<u>Overall</u>
	15,			/ 4	/ 4./	111	/ P <sup>Q</sup> /	/ W/	\ \psi \	/ W/	/ 40/	4/	4	/ 0 /			Recall	F-score	Accuracy
Statement	250	4	6	18	8	1	7	9	6	8	11	0	4	0	4	0.7440	0.8224	0.7813	82.66%
System	3	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9892	0.9857	0.9874	
Greet	17	0	116	1	1	0	0	0	3	1	0	0	0	0	0	0.8345	0.9063	0.8689	
Emotion	6	0	0	106	0	0	2	0	0	0	0	0	0	0	0	0.9298	0.8346	0.8797	
ynQuestion	7	0	2	0	38	2	0	0	0	0	0	0	0	0	0	0.7755	0.7308	0.7525	
whQuestion	4	0	1	0	4	39	0	1	0	0	0	0	0	0	0	0.7959	0.9070	0.8478	
Accept	7	0	0	1	0	0	5	0	0	0	0	3	0	0	0	0.3125	0.2632	0.2857	
Emphasis	3	0	2	1	0	0	1	7	1	0	0	0	0	0	0	0.4667	0.3889	0.4242	
Bye	2	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0.8750	0.5600	0.6829	
Continuer	2	0	0	0	0	0	0	1	0	4	0	1	0	0	0	0.5000	0.2857	0.3636	
Reject	2	0	0	0	0	1	0	0	0	0	4	0	2	0	0	0.4444	0.2667	0.3333	
yAnswer	0	0	1	0	1	0	4	0	0	0	0	3	0	0	0	0.3333	0.4286	0.3750	
nAnswer	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0.5000	0.2500	0.3333	
Other	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.0000	0.0000	undef	
OI																			
Clarify Using Chea	•			0	0	0	0	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
,	ap PO	S tags	3																Overell A
Using Chea	ap PO	S tags	3	get Line	dion And	Jestion Wh	Die stor	gat Lind	Die Die	Conti	Reigi Reigi	VARS	net name	net Other	Clarit	Precision	Recall	F-score	
Using Chea	ap PO ح ح ع ع ع ع ع ع ع ع ع ع ع ع ع ع ع ع ع	S tags	Serr GR	21 21	Jilon Vino	destion of the state of the sta	Question 7	git kingi 12	Tasis 6	Conti	Reiect Pe	yAnsi 2	ner ner	otter o	Clarit 4	Precision 0.7345	Recall 0.8553	<u>F-score</u> 0.7903	
Using Chea	ap PO	S tags	effi cice 7		Jilon O	un 1 0	Diesion 7 0	End Lind	Rye 6 0	Conti	Reigi 9	VARSI 2 0	name	Otter O	Clarit 4 0	Precision 0.7345 0.9928	Recall 0.8553 0.9892	F-score 0.7903 0.9910	
Using Chea Statement System Greet	ap PO  260 2 14	S tags S tags 2 276 0	7 0 116	21 0 0	yndi yndi 9 0 1	Lesion 1	Question 7 7 0		6 0 2	9 0 1	Perecipitation of the control of the	yAnsi 2 0 0	name	o Other		Precision 0.7345 0.9928 0.8593	Recall 0.8553 0.9892 0.9063	F-score 0.7903 0.9910 0.8821	
Using Chea Statement System Greet Emotion	ap PO  636  260  2 14 5	S tags 2 276 0	5 7 0 116 0	21 0 0 105	9 0 1 0	pesilon ultimate a la constant de la	Diesion 7		6 0 2	CGN   9   0   1   0	Qeles 9	1 NACE 1 2 0 0 0 0	nanti 5 0 0	o O O O	Chair 4 0 0 0	Precision 0.7345 0.9928 0.8593 0.9292	Recall 0.8553 0.9892 0.9063 0.8268	F-score 0.7903 0.9910 0.8821 0.8750	
Statement System Greet Emotion ynQuestion	ap PO  260 2 14 5 9	S tags  S tags  2  276  0  0	7 0 116 0 2	21 0 0 105	9 0 1 0 37	1 0 1 0 2	Diedion O		6 0 2 1	9 0 1 0 0	geee o	2 0 0 0	7,A7,200 0 0 0 0 0	Otret O O O O	Codit 4 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8593 0.9292 0.7400	Recall 0.8553 0.9892 0.9063 0.8268 0.7115	F-score 0.7903 0.9910 0.8821 0.8750 0.7255	
Statement System Greet Emotion ynQuestion whQuestion	260 2 14 5 9	S tags  S tags  2  276  0  0  0	7 0 116 0 2	21 0 0 105 0	9 0 1 0 37 3	1 0 1 0 2 38	Diesion O	12 0 0 0 0	6 0 2 1 0	9 0 1 0 0	gees o o o o o	7 ARS	7,A,TE	o o o o o	C'Rai <sup>1</sup> 4 0 0 0 0 0	Precision 0.7345 0.9928 0.8593 0.9292 0.7400 0.8444	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837	F-score 0.7903 0.9910 0.8821 0.8750 0.7255 0.8636	
Statement System Greet Emotion ynQuestion whQuestion Accept	260 2 14 5 9 2	S tags  S tags  2  276  0  0  0  0	7 0 116 0 2 1	21 0 0 105 0 0	9 0 1 0 37 3	1 0 1 0 2 38 0	7 0 0 0 5	12 0 0 0 0 1	6 0 2 1 0 0	9 0 1 0 0 0	geech	2 0 0 0 0 0	5 0 0 0 0	Official Off	C'aith 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8593 0.9292 0.7400 0.8444 0.3125	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632	F-score 0.7903 0.9910 0.8821 0.8750 0.7255 0.8636 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis	260 2 14 5 9 2 6	S tags 2 276 0 0 0 0 0	7 0 116 0 2 1 0	21 0 0 105 0 0 0	9 0 1 0 37 3 1	1 0 1 0 2 38 0	7 0 0 0 0 5	12 0 0 0 0 0 0 5	6 0 2 1 0 0 0	9 0 1 0 0 0 0	Qeee 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 4	7, Anti-	Ottes O O O O O O	Cai <sup>11</sup> 4 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8593 0.9292 0.7400 0.8444 0.3125 0.3846	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.2778	F-score 0.7903 0.9910 0.8821 0.8750 0.7255 0.8636 0.2857 0.3226	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye	260 2 14 5 9 2 6 4 0	S tags 2 276 0 0 0 0 0 0	7 0 116 0 2 1 0 2	21 0 0 105 0 0 0	9 0 1 0 37 3 1 0	1 0 1 0 2 38 0 0	7 0 0 0 0 5 1 0 0	12 0 0 0 0 0 1 0 5	6 0 2 1 0 0 0 0	9 0 1 0 0 0 0	9 0 0 0 0 0 0	2 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C'aith 4 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8593 0.9292 0.7400 0.8444 0.3125 0.3846 1.0000	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.2778 0.6400	F-score 0.7903 0.9910 0.8821 0.8750 0.7255 0.8636 0.2857 0.3226 0.7805	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer	260 2 14 5 9 2 6 4	S tags 2 276 0 0 0 0 0 0 0	7 0 116 0 2 1 0 0	21 0 0 105 0 0 0 0 0	9 0 1 0 37 3 1 0 0	1 0 1 0 2 38 0 0 0	7 0 0 0 0 5 1 0 0 0	12 0 0 0 0 1 0 5 0	6 0 2 1 0 0 0 0 0	9 0 1 0 0 0 0 0	9 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0	7, April 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cair 4 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8593 0.9292 0.7400 0.8444 0.3125 0.3846 1.0000 0.8000	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.2778 0.6400 0.2857	F-score 0.7903 0.9910 0.8821 0.8750 0.7255 0.8636 0.2857 0.3226 0.7805 0.4211	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject	260 2 14 5 9 2 6 4 0	S tags 2 276 0 0 0 0 0 0 0 0	7 0 116 0 2 1 0 0 0 0	21 0 0 105 0 0 0 0 0	9 0 1 0 37 3 1 0 0	1 0 1 0 2 38 0 0 0 0 0	7 0 0 0 0 5 1 0 0 0 0 0	12 0 0 0 0 0 0 5 0	6 0 2 1 0 0 0 0 0 0	9 0 1 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0	Clariff 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7345 0.9928 0.8593 0.9292 0.7400 0.8444 0.3125 0.3846 1.0000 0.8000 0.6667	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.2778 0.6400 0.2857 0.2667	F-score 0.7903 0.9910 0.8821 0.8750 0.7255 0.8636 0.2857 0.3226 0.7805 0.4211 0.3810	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	260 2 14 5 9 2 6 4 0	S tags 2 276 0 0 0 0 0 0 0 0 0	7 0 0 116 0 0 0 0 0 0 0 0 0 0	21 0 0 105 0 0 0 0 0 0	9 0 1 0 37 3 1 0 0	1 0 1 0 2 388 0 0 0 0 0 0	7 0 0 0 2 0 0 5 1 0 0 0 0 4	12 0 0 0 0 0 0 5 0 0	6 0 2 1 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0	7 P P P P P P P P P P P P P P P P P P P	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7345 0.9928 0.8593 0.9292 0.7400 0.8444 0.3125 0.3846 1.0000 0.8000 0.6667 0.1667	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.2778 0.6400 0.2857 0.2667 0.1429	F-score 0.7903 0.9910 0.8821 0.8750 0.7255 0.8636 0.2857 0.3226 0.7805 0.4211 0.3810 0.1538	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	260 2 14 5 9 2 6 4 0 1 0	S tags 2 276 0 0 0 0 0 0 1	7 0 116 0 2 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	21 0 0 105 0 0 0 0 0 0 0 0	9 0 1 0 37 3 1 0 0 0	1 0 1 0 0 2 38 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 2 0 0 5 1 0 0 0 0 4 0 0	12 0 0 0 0 0 0 5 0 0 0	6 0 2 1 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7345 0.9928 0.8593 0.9292 0.7400 0.8444 0.3125 0.3846 1.0000 0.8000 0.6667 0.1667 0.3333	Recall	F-score  0.7903 0.9910 0.8821 0.8750 0.7255 0.8636 0.2857 0.3226 0.7805 0.4211 0.3810 0.1538 0.2857	<u>Overall A</u> 83.24%
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	260 2 14 5 9 2 6 4 0	S tags 2 276 0 0 0 0 0 0 0 0 0	7 0 0 116 0 0 0 0 0 0 0 0 0 0	21 0 0 105 0 0 0 0 0 0	9 0 1 0 37 3 1 0 0	1 0 1 0 2 388 0 0 0 0 0 0	7 0 0 0 2 0 0 5 1 0 0 0 0 4	12 0 0 0 0 0 0 5 0 0	6 0 2 1 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0	7 P P P P P P P P P P P P P P P P P P P	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7345 0.9928 0.8593 0.9292 0.7400 0.8444 0.3125 0.3846 1.0000 0.8000 0.6667 0.1667	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.2778 0.6400 0.2857 0.2667 0.1429	F-score 0.7903 0.9910 0.8821 0.8750 0.7255 0.8636 0.2857 0.3226 0.7805 0.4211 0.3810 0.1538	

Figure C.5: Experiment Run 25: Emoticons Unrecognized

	ıal PO	S tan	s																
33g / 16tc		/x		et Emot	iton yn Oi	destion who	Jestion Accel	t Empl	Bye	CONT	nuet pelec	YAN	net ran	Swet Clark	di.	Ø Precision	<u>Recall</u>	F-score	Overall Accuracy
Statement	288	3	7	20	9	6	16	7	7	12	13	1	1	0	1	0.7366	0.9057	0.8124	83.64%
System	1	273	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9964	0.9891	0.9927	
Greet	12	0	141	1	0	2	1	0	1	1	0	0	0	0	0	0.8868	0.9400	0.9126	
Emotion	3	0	0	72	0	0	0	0	0	0	1	0	0	0	0	0.9474	0.7423	0.8324	
ynQuestion	4	0	1	0	34	6	0	0	0	1	0	0	0	0	0	0.7391	0.6667	0.7010	
whQuestion	0	0	0	0	7	45	0	0	0	0	0	1	0	0	0	0.8491	0.7627	0.8036	
Accept	3	0	0	2	1	0	7	0	0	0	2	1	0	0	0	0.4375	0.2593	0.3256	
Emphasis	4	0	0	1	0	0	0	3	1	1	0	0	0	0	0	0.3000	0.3000	0.3000	
Bye	0	0	1	0	0	0	1	0	14	0	0	0	0	0	0	0.8750	0.6087	0.7179	
Continuer	1	0	0	0	0	0	0	0	0	5	0	1	0	0	0	0.7143	0.2500	0.3704	
Reject	2	0	0	1	0	0	0	0	0	0	3	1	2	0	0	0.3333	0.1579	0.2143	
yAnswer	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0.6000	0.3750	0.4615	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0.6667	0.4000	0.5000	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1.0000	1.0000	1.0000	
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1.0000	0.6667	0.8000	
Using Che	•																		
Using Che	•			et Ind	iton Ot	lestion mo	Jestion Section	t my	lasis las	Orti	inuet eige		onet are		_			_	
	Stat	enent	stern Gre		idn ynQi	a who	desilon Accel	i Endi	Dye Dye		Qelec'	YAME	wet rate	Swed Clair	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Precision	Recall		Overall Ac
Statement	ج <sup>رگ</sup> 284	genent Sy 4	Sen Ge	20	11	8	17	7	6	9	11	yAng 4	1	Swet Clair	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Precision 0.7154	Recall 0.8931	0.7944	<u>Overall Ac</u> 82.34%
Statement System	جرة 284 1	Sylvent Sylven	Stern Gre	20 0	0	8	17 0	7	6 0	9	11 0	YAME 4 0	0	Shed Clark	0 XX	Precision 0.7154 0.9963	Recall 0.8931 0.9855	0.7944	
Statement System Greet	5 <sup>8</sup> 284 1 8	4 272 0	5eri (je 10 0 136	20 0 0	11 0 0	8 0 1	17 0 1	7 0 0	6 0 0	9 0 1	11 0 0	4 0 0	1 0 0	Claiff	0 0 0	Precision 0.7154 0.9963 0.9252	Recall 0.8931 0.9855 0.9067	0.7944 0.9909 0.9158	
Statement System Greet Emotion	5,00 284 1 8 4	4 272 0 0	10 0 136 2	20 0 0 <b>74</b>	0 0 0	8 0 1 0	17 0 1 0	7 0 0 0	6 0 0	9 0 1 0	11 0 0 0	4 0 0 0	1 0 0	Shein Cair	4 0 0 0	Precision 0.7154 0.9963 0.9252 0.9136	Recall 0.8931 0.9855 0.9067 0.7629	0.7944 0.9909 0.9158 0.8315	
Statement System Greet Emotion ynQuestion	284 1 8 4	4 272 0 0	10 0 136 2	20 0 0 <b>74</b> 0	0 0 0 30	8 0 1 0 4	17 0 1 0 0	7 0 0 0	6 0 0 1	9 0 1 0	11 0 0 0 1	4 0 0 0 0	1 0 0 0 0	Carlo	4 0 0 0 0	Precision 0.7154 0.9963 0.9252 0.9136 0.6818	Recall 0.8931 0.9855 0.9067 0.7629 0.5882	0.7944 0.9909 0.9158 0.8315 0.6316	
Statement System Greet Emotion ynQuestion whQuestion	284 1 8 4 7	4 272 0 0 0	10 0 136 2 1	20 0 0 <b>74</b> 0	0 0 0 30 9	8 0 1 0 4 46	17 0 1 0 0 0	7 0 0 0 0	6 0 0 1 0	9 0 1 0 1	11 0 0 0 1	VANG 4 0 0 0 0	1 0 0 0 0	Donate Continue of the continu	4 0 0 0 0	Precision 0.7154 0.9963 0.9252 0.9136 0.6818 0.7931	Recall 0.8931 0.9855 0.9067 0.7629 0.5882 0.7797	0.7944 0.9909 0.9158 0.8315 0.6316 0.7863	
Statement System Greet Emotion ynQuestion whQuestion Accept	284 1 8 4 7 0 5	4 272 0 0 0 0	10 0 136 2 1 0	20 0 0 74 0 0	0 0 0 30 9	8 0 1 0 4 46 0	17 0 1 0 0 0 7	7 0 0 0 0 0	6 0 0 1 0 0	9 0 1 0 1 1	11 0 0 0 1 0 2	4 0 0 0 0 1 1	1 0 0 0 0 1	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0	Precision 0.7154 0.9963 0.9252 0.9136 0.6818 0.7931 0.4118	Recall 0.8931 0.9855 0.9067 0.7629 0.5882 0.7797 0.2593	0.7944 0.9909 0.9158 0.8315 0.6316 0.7863 0.3182	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis	284 1 8 4 7 0 5 5	4 272 0 0 0 0	10 0 136 2 1 0 0	20 0 74 0 0 1	11 0 0 0 30 9 1	8 0 1 0 4 46 0	17 0 1 0 0 0 7	7 0 0 0 0 0 0 0 3	6 0 0 1 0 0 0	9 0 1 0 1 1 0	11 0 0 0 1 0 2	4 0 0 0 0 1 1	1 0 0 0 0 1 0	1 0 0 0 0 0 0	4 0 0 0 0 0	Precision 0.7154 0.9963 0.9252 0.9136 0.6818 0.7931 0.4118 0.2727	Recall 0.8931 0.9855 0.9067 0.7629 0.5882 0.7797 0.2593 0.3000	0.7944 0.9909 0.9158 0.8315 0.6316 0.7863 0.3182 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye	284 1 8 4 7 0 5 5	4 272 0 0 0 0 0	10 0 136 2 1 0 0 0	20 0 0 74 0 0 1 1	11 0 0 0 30 9 1 0	8 0 1 0 4 46 0 0	17 0 1 0 0 0 7 0	7 0 0 0 0 0 0 0 0	6 0 0 1 0 0 0 1 1 15	9 0 1 0 1 1 0 1	11 0 0 0 1 0 2 0	4 0 0 0 0 0 1 1 0 0 0 0	1 0 0 0 0 1 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0	Precision 0.7154 0.9963 0.9252 0.9136 0.6818 0.7931 0.4118 0.2727 0.8824	Recall 0.8931 0.9855 0.9067 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522	0.7944 0.9909 0.9158 0.8315 0.6316 0.7863 0.3182 0.2857 0.7500	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer	284 1 8 4 7 0 5 5 1 2	4 272 0 0 0 0 0 0	10 0 136 2 1 0 0 0	20 0 0 74 0 0 1 1 0	11 0 0 30 9 1 0 0	8 0 1 0 4 46 0 0 0	17 0 1 0 0 0 7 0 0	7 0 0 0 0 0 0 0 0	6 0 1 0 0 0 0 1 <b>15</b>	9 0 1 0 1 1 0 1 0	11 0 0 0 1 0 2 0 0	VANTA 4 0 0 0 0 0 1 1 1 0 0 0 0 0	1 0 0 0 0 1 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0	Precision 0.7154 0.9963 0.9252 0.9136 0.6818 0.7931 0.4118 0.2727 0.8824 0.7500	Recall 0.8931 0.9855 0.9067 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000	0.7944 0.9909 0.9158 0.8315 0.6316 0.7863 0.3182 0.2857 0.7500 0.4286	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject	284 1 8 4 7 0 5 5 1 2	4 272 0 0 0 0 0 0 0	10 0 136 2 1 0 0 0 0	20 0 0 74 0 0 1 1 0 0	11 0 0 0 30 9 1 0 0	8 0 1 0 4 46 0 0 0 0	17 0 1 0 0 0 7 0 0 0	7 0 0 0 0 0 0 0 0 0 0	6 0 0 1 0 0 0 1 <b>15</b> 0	9 0 1 0 1 1 0 1 0 6	11 0 0 0 1 0 2 0 0 0 3	VARTE 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 1 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7154 0.9963 0.9252 0.9136 0.6818 0.7931 0.4118 0.2727 0.8824 0.7500 0.5000	Recall 0.8931 0.9855 0.9067 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579	0.7944 0.9909 0.9158 0.8315 0.6316 0.7863 0.3182 0.2857 0.7500 0.4286 0.2400	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	284 1 8 4 7 0 5 5 1 2 1	4 272 0 0 0 0 0 0 0 0	10 0 136 2 1 0 0 0 0 0	20 0 0 74 0 0 1 1 0 0	11 0 0 0 30 9 1 0 0 0	8 0 1 0 4 46 0 0 0 0 0	17 0 1 0 0 0 7 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0	6 0 0 1 0 0 0 1 <b>15</b> 0	9 0 1 0 1 1 0 1 0 6	11 0 0 0 1 0 2 0 0 0 0 3	PACE   PA	1 0 0 0 0 1 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7154 0.9963 0.9252 0.9136 0.6818 0.7931 0.4118 0.2727 0.8824 0.7500 0.5000 0.4000	Recall 0.8931 0.9855 0.9067 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579 0.2500	0.7944 0.9909 0.9158 0.8315 0.6316 0.7863 0.3182 0.2857 0.7500 0.4286 0.2400 0.3077	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer nAnswer	284 1 8 4 7 0 5 5 1 2 1 0	4 272 0 0 0 0 0 0 0 0	10 0 136 2 1 0 0 0 0 0 0 0 0 0	20 0 0 74 0 0 1 1 0 0 0	11 0 0 0 30 9 1 0 0 0 0	8 0 1 0 4 46 0 0 0 0 0 0	17 0 1 0 0 0 7 0 0 0 0 0 2	7 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 1 0 0 0 1 15 0 0	9 0 1 0 1 1 0 1 0 6 0	11 0 0 0 1 0 2 0 0 0 3	4 4 0 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 1 0 0 0 0 0		4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7154 0.9963 0.9252 0.9136 0.6818 0.7931 0.4118 0.2727 0.8824 0.7500 0.5000 0.4000 0.4000	Recall 0.8931 0.9855 0.9067 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579 0.2500 0.4000	0.7944 0.9909 0.9158 0.8315 0.6316 0.7863 0.3182 0.2857 0.7500 0.4286 0.2400 0.3077 0.4000	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	284 1 8 4 7 0 5 5 1 2 1	4 272 0 0 0 0 0 0 0 0	10 0 136 2 1 0 0 0 0 0	20 0 0 74 0 0 1 1 0 0	11 0 0 0 30 9 1 0 0 0	8 0 1 0 4 46 0 0 0 0 0	17 0 1 0 0 0 7 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0	6 0 0 1 0 0 0 1 <b>15</b> 0	9 0 1 0 1 1 0 1 0 6	11 0 0 0 1 0 2 0 0 0 0 3	PACE   PA	1 0 0 0 0 1 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7154 0.9963 0.9252 0.9136 0.6818 0.7931 0.4118 0.2727 0.8824 0.7500 0.5000 0.4000	Recall 0.8931 0.9855 0.9067 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579 0.2500	0.7944 0.9909 0.9158 0.8315 0.6316 0.7863 0.3182 0.2857 0.7500 0.4286 0.2400 0.3077	

Figure C.6: Experiment Run 30: Emoticons Unrecognized

Using Actua																		
,	Statement	stern Gre	et fine	dion Audi	estion	Due stion	jt Ø	Emp	deis Onti	nuet Reject	YANS!	net name	Juet Clarity	Othe	Precision	Recall	F-score	Overall Accuracy
Statement	<b>263</b> 4	0	20	8	7	17	5	9	9	12	2	4	4	0	0.7225	0.8946	0.7994	83.72%
System	2 <b>298</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9933	0.9868	0.9900	
Greet	8 0	114	0	0	0	0	0	2	2	1	0	0	0	1	0.8906	0.9421	0.9157	
Emotion	4 0	4	84	0	0	0	0	0	0	0	0	0	0	0	0.9130	0.7778	0.8400	
ynQuestion	6 0	0	0	39	4	0	0	0	1	0	1	0	0	0	0.7647	0.7647	0.7647	
whQuestion	1 0	0	0	1	52	0	0	0	0	0	0	0	0	0	0.9630	0.8254	0.8889	
Accept	7 0	0	0	1	0	8	0	1	0	2	3	0	0	0	0.3636	0.2963	0.3265	
Bye	0 0	1	0	0	0	0	14	0	0	0	0	0	0	0	0.9333	0.7368	0.8235	
Emphasis	0 0	2	4	1	0	0	0	6	0	0	1	0	0	0	0.4286	0.3000	0.3529	
Continuer	0 0	0	0	0	0	1	0	1	7	0	1	0	0	0	0.7000	0.3684	0.4828	
Reject	1 0	0	0	1	0	0	0	1	0	3	0	3	0	0	0.3333	0.1667	0.2222	
yAnswer	1 0	0	0	0	0	1	0	0	0	0	3	0	0	0	0.6000	0.2727	0.3750	
nAnswer	0 0	0	0	0	0	0	0	0	0	0	0	3	0	0	1.0000	0.3000	0.4615	
CI =:E	4 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
Clarify	1 0	U	U	U	U	U	U	0	9	O	O	0	•	9	0.0000	0.0000	unuci	
Other Using Chea	0 0	0 s	0	0	0	0	0	0	0	0	0	0	0	1	1.0000	0.5000	0.6667	
Other	0 0	0 s	0	0	0	0	0	0	0	0	0	0	0	1	1.0000			
Other	0 0	0 s	0	0	0	O Trestion Acce	0	0	0	0	0	0	0	1	1.0000			Overall A
Other	0 0	0 s	0	0	0	0	0	0	0	0	0	0	0	1	1.0000	0.5000	0.6667	
Other Using Chea	ap POS tag	o s	o children	0 Jilon Vilan	0 estion	O Trestion Acce	O O	0 Emil	0 Onti	0 Qelec	0 VARSI	0 nAnt	0 Clarify	1 Othe	1.0000 Precision	0.5000	0.6667 F-score	
Other Using Chea	0 0 0 ap POS tag cycle from cycl  from cycl  from cycl  from cycl	o s s stern o	0 18 1 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 gestion with 9 0 1	0 Duestion Pcce 15	0 0 4 0 0		0 0 8 0 2	0 0 0 0 0	O VAREST	0 net	O O O O O	1 Office	1.0000 Precision 0.7370 0.9967 0.9426	0.5000 Recall 0.9150	0.6667 F-score 0.8164 0.9934 0.9465	
Other Using Chea Statement System	0 0 0 ap POS tag	o s s constant	0 18 1	0 0 vicin 7 0 0 0	0 Estion 9 0 1 0	0 Diesion Pece	0 0 4 0		0 Onti	0  Resp.  10  0	0 VANS	O O O O	O Cathy	Office of the original	1.0000 Precision 0.7370 0.9967	0.5000 Recall 0.9150 0.9901	0.6667 <u>F-score</u> 0.8164 0.9934	
Other Using Chea Statement System Greet	0 0 0 ap POS tag cycle from cycl  from cycl  from cycl  from cycl	0 S S O 0 0 115	0 18 1 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 gestion with 9 0 1	0  Duesitor  15  0  0	0 0 4 0 0		0 0 8 0 2	0 0 0 0 0	O VAREST	0 net	O O O O O	1 Office 0 0 0 0	1.0000 Precision 0.7370 0.9967 0.9426	0.5000 Recall 0.9150 0.9901 0.9504	0.6667 F-score 0.8164 0.9934 0.9465	
Other Using Chea Statement System Greet Emotion ynQuestion	0 0 0 ap POS tag posterior solution (s)	0 s s c,c,c,c,c,c,c,c,c,c,c,c,c,c,c,c,c,c	0	0 0 vicin 7 0 0 0	0 Estion 9 0 1 0	0 15 0 0	0 0 4 0 0	0	0 Onti	0 0 0 0 0 1	0 7/MS	O O O O	o ver coaire de la	1 Office 0 0 0 0	1.0000 Precision 0.7370 0.9967 0.9426 0.8830	0.5000 Recall 0.9150 0.9901 0.9504 0.7685	0.6667 F-score 0.8164 0.9934 0.9465 0.8218	
Other Using Chea Statement System Greet Emotion ynQuestion	0 0 0 ap POS tag  269 3 0 299 2 0 5 0 6 0	0 S 0 0 0 115 3	0 18 1 2 83 0	0 0 0 0 0 0 38	0 8 9 0 1 0 3	0  Desiration  15  0  0  0  0	0 0 4 0 0 0	0	0 0 8 0 2 0 2	0 0 0 10 0 1	0 0 0 2 0 0 0	O O O O	O Cairle O O O O	1 0 0 0 0	1.0000 Precision 0.7370 0.9967 0.9426 0.8830 0.7600	0.5000 Recall 0.9150 0.9901 0.9504 0.7685 0.7451	0.6667 F-score 0.8164 0.9934 0.9465 0.8218 0.7525	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion	269 3 0 299 2 0 5 0 6 0	0 s 0 0 0 115 3 0	0 18 1 2 83 0 0	0 0 1,0 1,0 1,0 1,0 0 0 0 0 38 4	0 Pestion 9 0 1 0 3 50	Diesitor Peces Property Proper	0 0 4 0 0 0 0	0	0 8 0 2 0 2	10 0 0 1 0 0	0 0 0 2 0 0 0 0	0 0 0 0 0 0	O O O O	1 0 0 0 0 0 0 0 0	1.0000 Precision 0.7370 0.9967 0.9426 0.8830 0.7600 0.9091	0.5000 Recall 0.9150 0.9901 0.9504 0.7685 0.7451 0.7937	0.6667  F-score 0.8164 0.9934 0.9465 0.8218 0.7525 0.8475	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept	0 0 0 ap POS tag  269 3 0 299 2 0 5 0 6 0 1 0 5 0	0 S S O O 0 115 3 0 0 0	0 18 1 2 83 0 0 0 0	0 0 1,00 7 0 0 0 0 38 4	0 8 8 8 9 0 1 0 3 50 0	0 Desiron 15 0 0 0 0 11	0 0 4 0 0 0 0 0	0	0 8 0 2 0 0 0 0	0 0 10 0 0 0 1 0 0	0 0 2 0 0 0 0 0 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	1 0 0 0 0 0 0 0 0 0	1.0000 Precision 0.7370 0.9967 0.9426 0.8830 0.7600 0.9091 0.4783	0.5000 Recall 0.9150 0.9901 0.9504 0.7685 0.7451 0.7937 0.4074	0.6667  F-score 0.8164 0.9934 0.9465 0.8218 0.7525 0.8475 0.4400	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	0 0 0 ap POS tag  269 3 0 299 2 0 5 0 6 0 1 0 5 0 1 0	0 S S O O O 115 3 O O O	18 18 1 2 83 0 0 0	0 0 1,00 7 0 0 0 0 38 4 1	9 0 1 0 3 <b>50</b> 0	0  Display  15  0  0  0  0  11  0	0 0 4 0 0 0 0 0 0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 10 0 0 0 1 0 0 0	0 0 1 0 0 0 0 0 3 0	0 0 0 0 0 0 0 0 0	0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.0000 Precision 0.7370 0.9967 0.9426 0.8830 0.7600 0.9091 0.4783 0.8824	0.5000 Recall 0.9150 0.9901 0.9504 0.7685 0.7451 0.7937 0.4074 0.7895	0.6667  F-score 0.8164 0.9934 0.9465 0.8218 0.7525 0.8475 0.4400 0.8333	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	0 0 0 ap POS tag 269 3 0 299 2 0 5 0 6 0 1 0 5 0 1 0 0 0	0 S S O O 0 115 3 0 0 0	0 18 1 2 83 0 0 0 0 4	0 0 0 1 7 0 0 0 0 38 4 1 0	0 9 0 1 0 3 <b>50</b> 0 0	0  Discription  15  0  0  0  0  11  0  0	0 0 4 0 0 0 0 0 0 0	0 Linux 11 0 0 2 0 0 1 0 5	0 8 0 2 0 0 0 0	0 0 0 10 0 0 0 0 2 0	0 0 2 0 0 0 0 0 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	1 0 0 0 0 0 0 0 0	1.0000 Precision 0.7370 0.9967 0.9426 0.8830 0.7600 0.9091 0.4783 0.8824 0.4167	0.5000  Recall 0.9150 0.9901 0.9504 0.7685 0.7451 0.7937 0.4074 0.7895 0.2500	0.6667  F-score 0.8164 0.9934 0.9465 0.8218 0.7525 0.8475 0.4400 0.8333 0.3125	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	0 0 0 ap POS tag 269 3 0 299 2 0 5 0 6 0 1 0 5 0 1 0 0 1 0	0 s s 0 0 0 0 115 3 0 0 0	0 18 1 2 83 0 0 0 0 0	0 0 0 17 0 0 0 0 38 4 1 0 0	0	0  Display  15  0  0  0  0  11  0  1	0 0 4 0 0 0 0 0 0 0 0 0	0	0 8 0 2 0 0 0 0 0 0	0 0 0 10 0 0 0 0 0 2 0 0	0 0 2 0 0 0 0 0 1 0 3 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.0000 Precision 0.7370 0.9967 0.9426 0.8830 0.7600 0.9091 0.4783 0.8824 0.4167 0.7000	0.5000  Recall 0.9150 0.9901 0.9504 0.7685 0.7451 0.7937 0.4074 0.7895 0.2500 0.3684	0.6667  F-score 0.8164 0.9934 0.9465 0.8218 0.7525 0.8475 0.4400 0.8333 0.3125 0.4828	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	0 0 0 ap POS tag 269 3 0 299 2 0 5 0 6 0 1 0 5 0 1 0 0 0 1 0 1 0	0 S S O 0 0 115 3 0 0 0 0 12 0	0 18 1 2 83 0 0 0 0 0 0	0 0 0 1 7 0 0 0 0 0 38 4 1 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0  Dresiding  15  0  0  0  0  11  0  0  1	0 0 4 0 0 0 0 0 0 0 0 0 0	0	0 8 8 0 0 2 2 0 0 0 0 0	0 0 0 10 0 0 0 0 0 2 0 0 0 0	0 0 2 0 0 0 0 0 1 0 3 0 1	0 0 0 0 0 0 0 0 0 0 0 0	0	1 0 0 0 0 0 0 0 0 0 0	1.0000 Precision 0.7370 0.9967 0.9426 0.8830 0.7600 0.9091 0.4783 0.8824 0.4167 0.7000 0.4000	0.5000  Recall 0.9150 0.9901 0.9504 0.7685 0.7451 0.7937 0.4074 0.7895 0.2500 0.3684 0.2222	0.6667  F-score 0.8164 0.9934 0.9465 0.8218 0.7525 0.8475 0.4400 0.8333 0.3125 0.4828 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	0 0 0 ap POS tag 269 3 0 299 2 0 5 0 6 0 1 0 5 0 1 0 1 0 1 0 1 0	0 S S O 0 0 115 3 0 0 0 0 1 2 0 0	0 18 1 2 83 0 0 0 0 0 0 0	0 0 0 1 0 0 0 0 0 38 4 1 0 0 0	0 	0  Dreside  15  0  0  0  0  11  0  0  0  0  0  0  0  0	0 0 4 0 0 0 0 0 0 0 0 0 0 0 0	0	0 0 8 0 2 0 0 0 0 0 0 0 7	0 0 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.0000  Precision  0.7370  0.9967  0.9426  0.8830  0.7600  0.9091  0.4783  0.8824  0.4167  0.7000  0.4000  0.7500	0.5000  Recall 0.9150 0.9901 0.9504 0.7685 0.7451 0.7937 0.4074 0.7895 0.2500 0.3684 0.2222 0.2727	0.6667  F-score 0.8164 0.9934 0.9465 0.8218 0.7525 0.8475 0.4400 0.8333 0.3125 0.4828 0.2857 0.4000	<u>Overall A</u> 84.47%

Figure C.7: Experiment Run 35: Emoticons Unrecognized

Using Actu																		
	Statement	Stern Gr	et Fill	dion ynd	Jestion Jun	Question Acce	The Street	EMP	Conti	Reife	i yansi	NET NATE	swet Other	Clait	Precision	Recall	F-score	<u>Overall</u> Accurac
Statement	<b>279</b> 3	7	10	15	3	10	4	8	7	16	4	1	0	6	0.7480	0.8532	0.7971	83.66%
System	3 <b>264</b>		0	0	0	-	0	0	0	0	0	0	0	0	0.9814	0.9814	0.9814	00.0070
Greet	16 0		1	0	0	0	0	0	0	1	0	0	0	0	0.8792	0.9034	0.8912	
Emotion	6 0		99	0	0	0	0	1	0	0	0	0	1	1	0.9083	0.8839	0.8959	
ynQuestion	4 2	1	0	44	1	0	0	1	0	0	0	0	0	0	0.8302	0.7097	0.7652	
whQuestion	1 0	1	0	2	44	0	0	1	0	0	1	0	0	0	0.8800	0.8980	0.8889	
Accept	6 0		0	1	0	13	0	1	1	1	2	0	0	0	0.5200	0.5200	0.5200	
Bye	0 0	0	0	0	0	0	14	0	0	0	0	0	0	0	1.0000	0.7778	0.8750	
Emphasis	3 0	2	2	0	0	0	0	6	0	0	0	0	0	0	0.4615	0.3158	0.3750	
Continuer	2 0		0	0	0	0	0	0	4	0	0	0	0	0	0.6667	0.3077	0.4211	
Reject	3 0	0	0	0	0	0	0	1	0	2	0	1	0	0	0.2857	0.0952	0.1429	
yAnswer	1 0	0	0	0	1	2	0	0	0	0	5	0	0	0	0.5556	0.4167	0.4762	
nAnswer	0 0	0	0	0	0	0	0	0	1	1	0	0	0	0	0.0000	0.0000	undef	
Other	0 0	0	0	0	0	0	0	0	0	0	0	0	1	0	1.0000	0.5000	0.6667	
Clarify Using Chea		JS	0	0	0		0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
	ap POS tag	JS																O
Using Chea	ap POS tag	stern Gr	get Grif	dion ynd	Jestion wh	Question Acce	\$\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	Emp	, asis Coni	Reie Peie	J. VARSI	net ner	other other	Clarit	Precision	Recall	F-score	
Using Chea	ap POS tag	is steril	10 10	Jion Vino	Jestion 4	Question Acce	3	Empl 11	Rasis Conti	Rejes 15	Ji Ansi Vansi	net ner	Swet Other	Clarit	Precision 0.7419	<b>Recall</b> 0.8440	<u>F-score</u> 0.7897	
Using Chea	32 2 265	js stern 5	EET LITTE	olion violente de la constante	Jestion 4	Quesion Acce 10	3 0	Empl 11 0	Resis Conii	Peie Point	Ansi Vansi 5	ner ner	outer of the other	Cart 7 0	Precision 0.7419 0.9779	Recall 0.8440 0.9851	F-score 0.7897 0.9815	
Using Chea Statement System Greet	ap POS tag	5 3 130	10 1 0	o o	desilor un 4 0	Ouesion  10  0  0	3 0 0	######################################	Continue 8	Description of the second of t	Janesi Variesi 5 0	O O O	o o o	Calif	Precision 0.7419 0.9779 0.9155	Recall 0.8440 0.9851 0.8966	F-score 0.7897 0.9815 0.9059	
Using Chea  Statement System Greet Emotion	ap POS tac Saternerio 276 2 2 265 11 0 8 0	S  S  S  S  S  S  S  S  S  S  S  S  S	10 10 100	16 0 0 0	Jestion 4	Quesiton  10  0  0  1	3 0 0	11 0 0 1	Resis Continues of the	Reels 0 1 0	7 VARIS 0 0 0 0 0	nert nert	Office O	7 0 0	Precision 0.7419 0.9779 0.9155 0.8850	Recall 0.8440 0.9851 0.8966 0.8929	F-score 0.7897 0.9815 0.9059 0.8889	
Statement System Greet Emotion ynQuestion	ap POS tag 276 2 2 265 11 0 8 0 10 1	5 5 3 130 2 3	10 10 100 0	16 0 0 0 41	Jestor M 4 0 0 0	Outerior 10 0 0 0 1 0 0	3 0 0 0		8 0 0 0	Reject Re	7 Ansis	O O O	o o o o o	7 0 0 0 0 0	Precision 0.7419 0.9779 0.9155 0.8850 0.7069	Recall 0.8440 0.9851 0.8966 0.8929 0.6613	F-score 0.7897 0.9815 0.9059 0.8889 0.6833	
Statement System Greet Emotion ynQuestion whQuestion	ap POS tag  276 2 2 265 11 0 8 0 10 1 0 1	5 5 3 130 2 2 3 0 0	10 10 10 100 0	16 0 0 0 41 4	4 0 0 2 42	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0	11 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0	15 0 0 0	A S O O O O O O O O O O O O O O O O O O		Ottet Ottet O O O O O O O O O	7 0 0 0 0	Precision 0.7419 0.9779 0.9155 0.8850 0.7069 0.8750	Recall 0.8440 0.9851 0.8966 0.8929 0.6613 0.8571	F-score 0.7897 0.9815 0.9059 0.8889 0.6833 0.8660	
Statement System Greet Emotion ynQuestion whQuestion Accept	ap POS tag  276 2 2 265 11 0 8 0 10 1 11 0	5 5 3 130 2 2 3 0 0 0	10 10 100 0 0 0	16 0 0 0 41 4	4 0 0 0 2 42	10 0 0 0 1 0 0	3 0 0 0 0	11 0 0 1 1 0 1	8 0 0 0 0 0	15 0 0 0 0	VARISTO 0 0 0 0 1 2		0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8440 0.9851 0.8966 0.8929 0.6613 0.8571 0.4800	F-score 0.7897 0.9815 0.9059 0.8889 0.6833 0.8660 0.4444	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	ap POS tage Post and	S	10 10 100 0 0 0 0	16 0 0 0 41 4 1	4 0 0 2 42 0	10 0 0 1 0 0 1 1 0	3 0 0 0 0 0	######################################	8 0 0 0 0 0	15 0 0 0 0 0	5 0 0 0 0 0 1 2 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 0	7 0 0 0 0 0	Precision 0.7419 0.9779 0.9155 0.8850 0.7069 0.8750 0.4138 0.8824	Recall 0.8440 0.9851 0.8966 0.8929 0.6613 0.8571 0.4800 0.8333	F-score 0.7897 0.9815 0.9059 0.8889 0.6833 0.8660 0.4444 0.8571	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	ap POS tage 2 265 11 0 8 0 10 1 11 0 1 1 0 2 0 0	5 5 3 130 2 3 0 0 0	10 10 100 0 0 0 0 0	16 0 0 0 41 4 1 0	4 0 0 0 2 42 0 0	10 0 0 1 0 0 1 2 1 0	3 0 0 0 0 0 0 0	11 0 0 1 1 0 1 0 5	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 0 0 0 0 0 0	5 0 0 0 0 1 2 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	Carl 7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7419 0.9779 0.9155 0.8850 0.7069 0.8750 0.4138 0.8824 0.5000	Recall 0.8440 0.9851 0.8966 0.8929 0.6613 0.8571 0.4800 0.8333 0.2632	F-score  0.7897 0.9815 0.9059 0.8889 0.6833 0.8660 0.4444 0.8571 0.3448	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	ap POS tage Post and	5 5 3 130 2 3 0 0 0	10 10 100 0 0 0 0 0	16 0 0 0 41 4 1 0 0	4 0 0 0 0 0 0 0 0	10 0 0 1 0 0 1 1 0 0	3 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 1 0 5 0	8 0 0 0 0 0 0 0 0 4	15 0 0 0 0 0 0 0 0	5 0 0 0 0 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	Carl 7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7419 0.9779 0.9155 0.8850 0.7069 0.8750 0.4138 0.8824 0.5000 0.6667	Recall 0.8440 0.9851 0.8966 0.8929 0.6613 0.8571 0.4800 0.8333 0.2632 0.3077	F-score  0.7897 0.9815 0.9059 0.8889 0.6833 0.8660 0.4444 0.8571 0.3448 0.4211	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap POS tage  276 2 2 265 11 0 8 0 10 1 11 0 2 0 2 0 1 0	5 3 130 2 3 0 0 0 0	10 10 100 0 0 0 0 0 0 0	16 0 0 41 4 1 0 0 0	4 0 0 0 0 2 42 0 0 0 0	10 0 0 1 0 0 12 1 0 0	3 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 1 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 1 1	0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0	Precision  0.7419  0.9779  0.9155  0.8850  0.7069  0.8750  0.4138  0.8824  0.5000  0.6667  0.6000	Recall 0.8440 0.9851 0.8966 0.8929 0.6613 0.8571 0.4800 0.8333 0.2632 0.3077 0.1429	F-score  0.7897 0.9815 0.9059 0.8889 0.6833 0.8660 0.4444 0.8571 0.3448 0.4211 0.2308	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap POS tage  276 2 2 265 11 0 8 0 10 1 11 0 2 0 2 0 1 0 0	5 3 130 2 3 0 0 0 0 0	10 10 100 0 0 0 0 0 0 0 0 0	16 0 0 0 41 4 1 0 0 0	4 0 0 0 0 0 0 0 0 0 0	10 0 0 1 0 0 12 1 0 0 0	3 3 0 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 1 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 1 2 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7419 0.9779 0.9155 0.8850 0.7069 0.8750 0.4138 0.8824 0.5000 0.6667 0.6000 0.6667	Recall	F-score  0.7897 0.9815 0.9059 0.8889 0.6833 0.8660 0.4444 0.8571 0.3448 0.4211 0.2308 0.4444	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer nAnswer	ap POS tage Post age	5 3 130 0 0 0 0 0 0	10 10 100 0 0 0 0 0 0 0 0 0 0 0 0	16 0 0 0 41 4 1 0 0 0 0	4 0 0 0 0 2 42 0 0 0 0 0 0 0 0 0 0 0	10 0 0 1 0 0 12 1 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 0 5 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 1 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7419 0.9779 0.9155 0.8850 0.7069 0.8750 0.4138 0.8824 0.5000 0.6667 0.6000 0.6667 0.3333	Recall 0.8440 0.9851 0.8966 0.8929 0.6613 0.8571 0.4800 0.8333 0.2632 0.3077 0.1429 0.3333 0.5000	F-score  0.7897 0.9815 0.9059 0.8889 0.6833 0.8660 0.4444 0.8571 0.3448 0.4211 0.2308 0.4444 0.4000	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap POS tage  276 2 2 265 11 0 8 0 10 1 11 0 2 0 2 0 1 0 0	5 3 130 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 10 100 0 0 0 0 0 0 0 0 0	16 0 0 0 41 4 1 0 0 0	4 0 0 0 0 0 0 0 0 0 0	10 0 0 1 0 0 12 1 0 0 0 0	3 3 0 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 1 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 1 2 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7419 0.9779 0.9155 0.8850 0.7069 0.8750 0.4138 0.8824 0.5000 0.6667 0.6000 0.6667	Recall	F-score  0.7897 0.9815 0.9059 0.8889 0.6833 0.8660 0.4444 0.8571 0.3448 0.4211 0.2308 0.4444	<u>Overall A</u> 83.01%

Figure C.8: Experiment Run 40: Emoticons Unrecognized

Using Actua	Str.	sugar Sys		et Emoli	Jon Aug	estion	Mestion Acc	\$1. \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Empl	asis Conti	Reigh	St Ans	net rians	det Clarit	A Othe	Precision	<u>Recall</u>	F-score	Overall Accuracy
Statement	285	4	7	19	8	6	5	4	7	11	11	3	2	1	0	0.7641	0.8559	0.8074	83.77%
System	4	270	0	1	0	0	0	0	0	0	0	0	0	0	0	0.9818	0.9854	0.9836	
Greet	11	0	109	2	0	1	0	0	0	1	0	0	0	0	0	0.8790	0.8790	0.8790	
Emotion	4	0	2	94	0	0	0	0	1	0	0	0	0	0	0	0.9307	0.7899	0.8545	
ynQuestion	10	0	1	0	35	2	0	0	0	0	0	0	0	1	0	0.7143	0.7609	0.7368	
whQuestion	0	0	3	0	2	48	0	0	0	1	0	0	0	0	0	0.8889	0.8421	0.8649	
Accept	8	0	0	0	0	0	14	0	0	0	0	2	1	0	0	0.5600	0.6087	0.5833	
Bye	1	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0.9412	0.7273	0.8205	
Emphasis	2	0	2	2	0	0	0	0	8	1	1	0	0	0	0	0.5000	0.4706	0.4848	
Continuer	4	0	0	0	1	0	1	0	0	4	0	0	0	0	0	0.4000	0.2105	0.2759	
Reject	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0.3333	0.0714	0.1176	
yAnswer	0	0	0	1	0	0	3	0	0	1	0	3	0	0	0	0.3750	0.3750	0.3750	
nAnswer	1	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0.7500	0.6667	0.7059	
Clarify	2	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0.2500	0.3333	0.2857	
O41-	_	_	_				_	-							-				
Other Using Chea				0	0	0	O jon	1	0	0	0	0	0	0	4	0.8000	1.0000	0.8889	
	ap PC	S tags	<u> </u>																Overall A
Using Chea	ap PC		s Serr Gree	at Emoi	Joh yndi	estion	ALESTION ACC		timpl	Con	Reje	St VANS	nars'	olait Clait	d Other	Precision	<u>Recall</u>	F-score	
Using Chea	ap PC	OS tags	S Green Green	Emoi 22	ion violi	estion who	Diestion Acc	N ONE	Empl 8	iasis Coni 10	Reight Reight	ot yans	net ransi	ouet Clarif	d Other	Precision 0.7487	<b>Recall</b> 0.8679	<u>F-score</u> 0.8039	
Using Chea	ap PC	OS tags	gen Gree	E Lindi 22 0	yndi 9 0	estion who	Luesion Acco	5 0	Ethol 8 0	Conii 10	Reight Peig	VANS 4 0	ransi 2 0	Classific Classi	Other 2	Precision 0.7487 0.9926	Recall 0.8679 0.9854	F-score 0.8039 0.9890	
Using Chea	289 2	270 0	9 0 110	22 0 1	yral yral o	section 3 0 1	Juesian Accionate S	5 0		Continue of the continue of th	Rue P	VARIA O O	rarsi	Call Call	9 Other 2 0 0	Precision	Recall 0.8679 0.9854 0.8871	F-score 0.8039 0.9890 0.8980	
Statement System Greet Emotion	289 2 8 5	25 tags  25 tags  4  270  0	9 0 110	22 0 1 90	yrai 9 0 0	sesion 3 0 1 0	pcc 5 0 0 0	5 0 0	######################################		Reight Re	\$\frac{1}{\partial}  \text{A} \\  \text{A} \\  \text{O} \ \text{O} \\  \text{O} \\  \text{O} \\	narei 2 0 0	Chart	0 0 0 0	Precision	Recall 0.8679 0.9854 0.8871 0.7563	F-score 0.8039 0.9890 0.8980 0.8333	
Statement System Greet Emotion ynQuestion	289 289 5 11	25 tags 25 tags 270 0 0 0	9 0 110	22 0 1 90	9 0 0 0	3 0 1 0	Liesion Poch	5 0 0 0	Empl 8 0 0	10 0 1 0	Reight Re	4 0 0 0 0 0	net ransi	Cartine Cartine Control Contro	0 0 0 0 0	Precision	Recall 0.8679 0.9854 0.8871 0.7563 0.6304	F-score 0.8039 0.9890 0.8980 0.8333 0.6517	
Statement System Greet Emotion ynQuestion whQuestion	289 2 8 5 11	270 0 0 0	9 0 110 1 0	22 0 1 90 0 0 0	9 0 0 0 29	3 0 1 0 1 52	Lite Story	5 0 0 0	######################################	10 0 1 0 1 1	12 0 0 0 0	VANTA 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0	Cattle C	0 0 0 0 0 0	Precision	Recall 0.8679 0.9854 0.8871 0.7563 0.6304 0.9123	F-score 0.8039 0.9890 0.8980 0.8333 0.6517 0.8595	
Statement System Greet Emotion ynQuestion whQuestion Accept	289 289 5 11	270 0 0 0 0	9 0 110 1 0 2	22 0 1 1 90 0 0 0 0 0	9 0 0 0 29 8	3 0 1 0 1 52	5 0 0 0 0 14	5 0 0 0 0	### Extraction	10 0 1 0 1 1 0	72 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 2	7.4.7.5. 7.4	C) 2	2 0 0 0 0 0	Precision	Recall 0.8679 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087	F-score 0.8039 0.9890 0.8980 0.8333 0.6517 0.8595 0.5833	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	289 2 8 5 11 1 8	270 0 0 0 0 0	9 0 110 1 0 0	22 0 1 90 0 0	9 0 0 0 29 8 0	3 0 1 0 52 0	5 0 0 0 0 14	5 0 0 0 0 0	######################################	10 0 1 0 1 1 0 0	12 0 0 0 0 0	4 0 0 0 0 0 0 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0	9 Office 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8679 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273	F-score  0.8039 0.9890 0.8980 0.8333 0.6517 0.8595 0.5833 0.8421	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	289 289 2 8 5 11 1 8 0	9S tags 4 270 0 0 0 0 0 0	9 0 110 1 0 2 0 0	22 0 1 90 0 0 0	9 0 0 0 29 8 0 0	3 0 1 0 1 52 0 0	5 0 0 0 0 0 14 0	5 0 0 0 0 0 0 0	8 0 0 1 0 0 1 0 6	10 0 1 1 0 0 1 1 0 0	12 0 0 0 0 0 0	4 0 0 0 0 0 0 0	0 0 0 0 0 0 0	Chair	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8679 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273 0.3529	F-score  0.8039 0.9890 0.8980 0.8333 0.6517 0.8595 0.5833 0.8421 0.3750	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	289 289 2 8 5 11 1 8 0 2	9S tags 4 270 0 0 0 0 0 0 0	9 0 110 1 0 0 0 0	22 0 1 90 0 0 0	9 0 0 0 29 8 0 0 0	3 0 1 0 1 52 0 0	5 0 0 0 0 14 0 0	5 0 0 0 0 0 0 0	8 0 0 0 1 0 0 0 6 0 0	10 0 1 1 0 0 1 1 0 0 1 4	12 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	Cath Color of the	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7487 0.9926 0.9091 0.9278 0.6744 0.8125 0.5600 1.0000 0.4000	Recall 0.8679 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273 0.3529 0.2105	F-score  0.8039 0.9890 0.8980 0.8333 0.6517 0.8595 0.5833 0.8421 0.3750 0.2759	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	289 289 2 8 5 11 1 8 0 2 4 2	25 tags 4 270 0 0 0 0 0 0 0 0 0	9 0 110 1 0 0 0	22 0 1 90 0 0 0 0 0	9 0 0 0 29 8 0 0 0	3 0 1 0 1 52 0 0 0	5 0 0 0 0 0 14 0 0	5 0 0 0 0 0 0 0 0 0	8 0 0 1 0 0 1 0 6 0 1	10 0 1 1 0 0 1 1 0 0 1 4	12 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1	2 0 0 0 0 1 0 0 0 0	2 0 0 0 0 0 0 0 0 0	Precision	Recall	F-score  0.8039 0.9890 0.8980 0.8333 0.6517 0.8595 0.5833 0.8421 0.3750 0.2759 undef	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	289 PC 289 2 2 8 5 11 1 2 2 4 4 2 0 0	25 tags 4 270 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 110 1 0 0 0 0	22 0 1 90 0 0 0 0 0	9 0 0 0 29 8 0 0 0	3 0 1 1 52 0 0 0 0 0	5 0 0 0 0 14 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0	8 0 0 1 0 0 1 0 6 0 1 0 0 0 1 0 0 0 0 1 0 0 0 0	10 0 1 0 1 1 0 0 1 4 0	12 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7487 0.9926 0.9091 0.9278 0.6744 0.8125 0.5600 1.0000 0.4000 0.4000 0.0000 0.3333	Recall	F-score  0.8039 0.9890 0.8980 0.8333 0.6517 0.8595 0.5833 0.8421 0.3750 0.2759 undef 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer nAnswer	289 PC 289 2 2 8 8 5 11 1 1 8 0 0 2 2 4 4 2 2 0 1 1	0S tags 4 270 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 110 1 0 0 0 0	22 0 1 90 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 1 52 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 1 1 0 0 1 1 1 0 0 1 1 0 0 1 1 0 0 1 0	12 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7487 0.9926 0.9091 0.9278 0.6744 0.8125 0.5600 1.0000 0.4000 0.4000 0.0000 0.3333 0.7500	Recall	F-score  0.8039 0.9890 0.8980 0.8333 0.6517 0.8595 0.5833 0.8421 0.3750 0.2759 undef 0.2857 0.7059	Overall A 83.02%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	289 PC 289 2 2 8 5 11 1 2 2 4 4 2 0 0	25 tags 4 270 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 110 1 0 0 0 0	22 0 1 90 0 0 0 0 0	9 0 0 0 29 8 0 0 0	3 0 1 1 52 0 0 0 0 0	5 0 0 0 0 14 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0	8 0 0 1 0 0 1 0 6 0 1 0 0 0 1 0 0 0 0 1 0 0 0 0	10 0 1 0 1 1 0 0 1 4 0	12 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7487 0.9926 0.9091 0.9278 0.6744 0.8125 0.5600 1.0000 0.4000 0.4000 0.0000 0.3333	Recall	F-score  0.8039 0.9890 0.8980 0.8333 0.6517 0.8595 0.5833 0.8421 0.3750 0.2759 undef 0.2857	

Figure C.9: Experiment Run 45: Emoticons Unrecognized

Using Actu		is lays		et Emot	Jon Villa	estion	Destion Acc	ett /	Empl	nasis Cont	Aruei Reig	St VARS	ner nanst	Clarif	d Othe	Precision	Recall	F-score	Overall Accurac
Statement	266	4	7	13	11	3	6	7	9	11	7	4	4	1	2	0.7493	0.8721	0.8061	83.09%
System	0	238	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0000	0.9835	0.9917	
Greet	10	0	131	0	0	0	0	0	0	1	0	1	0	0	1	0.9097	0.9161	0.9129	
Emotion	3	0	1	92	0	0	1	0	1	0	0	0	1	0	0	0.9293	0.8288	0.8762	
ynQuestion	2	0	1	0	29	6	0	0	1	0	0	0	1	1	0	0.7073	0.6744	0.6905	
whQuestion	1	0	2	0	3	57	0	0	0	0	0	0	0	0	0	0.9048	0.8382	0.8702	
Accept	8	0	0	1	0	0	5	0	0	0	2	4	0	0	0	0.2500	0.3333	0.2857	
Bye	0	0	0	1	0	0	0	10	0	0	0	0	0	0	0	0.9091	0.5556	0.6897	
Emphasis	2	0	1	1	0	0	0	0	9	0	0	0	0	0	0	0.6923	0.4286	0.5294	
Continuer	4	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0.5000	0.2941	0.3704	
Reject	6	0	0	0	0	1	0	1	0	0	3	0	2	0	0	0.2308	0.2143	0.2222	
yAnswer	0	0	0	0	0	1	2	0	1	0	0	3	0	0	0	0.4286	0.2500	0.3158	
nAnswer	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0.6000	0.2727	0.3750	
Clarify	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.5000	0.3333	0.4000	
		-																	
Other Using Chea	2 ap PC		0	3	0	0	0 /ig/	0	0	0	0	0	0	0	3	0.3750	0.5000	0.4286	
L	2 ap PC	OS tags	0						-1										Overall
Using Chea	ap PC	OS tags	O Significant	ži knoj	July Audi	estion	uestion Acc		timi	, Rasis Coni	Acik Pinter	,ct /Ans	net nares	Jet Clarif	A Othe	Precision	Recall	F-score	Overall A
Using Chea	2 ap PC ح ح <b>266</b>	OS tags	0 S S Serin Cree	ž knoj 16	ign vindi	estion who	uestion ACC 5		Erngi 11	lasis Coni	Riffuer Reif	Ct Ans	ransi 4	dait Claif	d Other	Precision 0.7368	Recall 0.8721	<u>F-score</u> 0.7988	
Using Chea	2 ap PC چې <b>266</b> 0	OS tags	0 S S S S S S S S S S S S O S O O O O O	trnoi 16 0	yndi 12 0	estion who	pesitor PCC 5	8 × × × × × × × × × × × × × × × × × × ×	Emil 11 0	Coni 9	Reight Reight	O VANS	TATEST 4	Clariff	Other 3	Precision 0.7368 0.9958	Recall 0.8721 0.9793	F-score 0.7988 0.9875	
Using Chea  Statement System Greet	2 ap PC s <sup>3</sup> 266 0 7	OS tags  Stephent  Stephen	0 5 7 0 131	16 0	12 0 0	short with a second sec	per	7 0 0	######################################	Contraction of the second of t	Reight Reight	A O O	ransi 4 0	Caith Coaith	3 0 0	Precision	Recall 0.8721 0.9793 0.9161	F-score 0.7988 0.9875 0.9258	
Statement System Greet Emotion	2 ap PC 266 0 7 5	0S tags  15  237  0  0	0 5 7 0 131	16 0 0	12 0 0 0	short of the state	pcc 5 0 0 1	7 0 0		9 1 1 0	Reik 8 0 0 0	4 0 0	TARSON O O O O	Carly Carly O	3 0 0 0	Precision	Recall 0.8721 0.9793 0.9161 0.8108	F-score 0.7988 0.9875 0.9258 0.8571	
Statement System Greet Emotion ynQuestion	2 ap PC 266 0 7 5 4	0S tags  15  237  0  0  0	0 5 7 0 131 1 2	2 4 10 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 25	Besiding of the second of the	Lucsion 5 0 0 1 0	7 0 0 0	## Company	9 1 1 0	Reigniet Reign	4 0 0 0 0 0 0	A D D D D D D D D D D D D D D D D D D D	Clarify O O O O O O	3 0 0 0	Precision	Recall 0.8721 0.9793 0.9161 0.8108 0.5814	F-score 0.7988 0.9875 0.9258 0.8571 0.6250	
Statement System Greet Emotion ynQuestion whQuestion	2 ap PC 266 0 7 5 4 1	DS tags  DS tags  S	0 S Cycle Cy	16 0 0 90 0 0 0	12 0 0 0 25 6	3 0 1 0 4 57	pesitor pcc 5 0 0 0 1 1 0 0	7 0 0 0 0	######################################	9 1 1 0 0	Reight Re	4 0 0 0 0 0 0 0 0	4 0 0 1 0 0 0	Cait Coait C	3 0 0 0 0	Precision	Recall 0.8721 0.9793 0.9161 0.8108 0.5814 0.8382	F-score 0.7988 0.9875 0.9258 0.8571 0.6250 0.8507	
Statement System Greet Emotion ynQuestion whQuestion Accept	2 ap PC 266 0 7 5 4 1 9	DS tags  DS tags  S	0 S S S S S S S S S S S S S S S S S S S	16 0 0 90 0	12 0 0 0 25 6	3 0 1 0 4 57	5 0 0 1 0 0 7	7 0 0 0 0 0	######################################	9 1 0 0 0	Reference of the second	4 0 0 0 0 0 0 5	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0	3 0 0 0 0 0	Precision	Recall 0.8721 0.9793 0.9161 0.8108 0.5814 0.8382 0.4667	F-score 0.7988 0.9875 0.9258 0.8571 0.6250 0.8507 0.3590	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	2 ap PC 266 0 7 5 4 1 9 0	0S tags  5  237  0  0  0  0  0	0 7 0 131 1 2 1 0 0	16 0 0 90 0 0	12 0 0 0 25 6 0	3 0 1 0 4 57 0	5 0 0 1 0 0 7	7 0 0 0 0 1 0	######################################	9 1 1 0 0 0	8 0 0 0 0 0 0	4 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0	Precision	Recall 0.8721 0.9793 0.9161 0.8108 0.5814 0.8382 0.4667 0.5556	F-score 0.7988 0.9875 0.9258 0.8571 0.6250 0.8507 0.3590 0.7143	Overall A 82.41%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	2 ap PC 266 0 7 5 4 1 9 0 2	0S tags  5  237  0  0  0  0  0  0	0 S S S S S S S S S S S S S S S S S S S	16 0 0 90 0 0 1 0	12 0 0 0 25 6 0 0	3 0 1 0 4 57 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 1 0 10	11 0 0 1 1 0 0 0 7	9 1 1 0 0 0 0	8 0 0 0 0 0 0 0 1	4 0 0 0 0 0 0 0 0	4 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Cath  Color    Color	3 0 0 0 0 0 0	Precision  0.7368 0.9958 0.9357 0.9091 0.6757 0.8636 0.2917 1.0000 0.5833	Recall 0.8721 0.9793 0.9161 0.8108 0.5814 0.8382 0.4667 0.5556 0.3333	F-score  0.7988 0.9875 0.9258 0.8571 0.6250 0.8507 0.3590 0.7143 0.4242	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	2 ap PC 266 0 7 5 4 1 9 0 2 5	0S tags  5 237 0 0 0 0 0 0 0 0	0 5 7 0 131 1 2 1 0 0	16 0 0 90 0 0 1 0	12 0 0 0 25 6 0 0	3 0 1 0 4 57 0 0 0	5 0 0 0 1 0 0 0 1	7 0 0 0 0 0 1 0 10	######################################	9 1 1 0 0 0 0 0 0	8 0 0 0 0 0 0 0	4 0 0 0 0 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0	Precision  0.7368 0.9958 0.9357 0.9091 0.6757 0.8636 0.2917 1.0000 0.5833 0.5000	Recall 0.8721 0.9793 0.9161 0.8108 0.5814 0.8382 0.4667 0.5556 0.3333 0.3529	F-score  0.7988 0.9875 0.9258 0.8571 0.6250 0.8507 0.3590 0.7143 0.4242 0.4138	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	2 ap PC 266 0 7 5 4 1 1 9 0 0 2 5 3 3	5 237 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	16 0 0 90 0 0 1 0 1 0	12 0 0 0 25 6 0 0 0	3 0 1 0 4 57 0 0 0 0	5 0 0 0 1 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 1 0 0 0	11 0 0 1 1 0 0 0 0 7 0 0 0 0 0	9 1 1 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 1 0 0 0 0 0 0 0 0 0 0 3	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0	Precision  0.7368 0.9958 0.9357 0.9091 0.6757 0.8636 0.2917 1.0000 0.5833 0.5000 0.2222	Recall 0.8721 0.9793 0.9161 0.8108 0.5814 0.8382 0.4667 0.5556 0.3333 0.3529 0.1429	F-score  0.7988 0.9875 0.9258 0.8571 0.6250 0.8507 0.3590 0.7143 0.4242 0.4138 0.1739	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	2 ap PC 266 0 7 7 5 4 1 1 9 0 2 5 5 3 0 0	5 237 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	16 0 0 90 0 0 1 0 1 0 0	12 0 0 0 0 25 6 0 0 0	3 0 1 0 4 57 0 0 0	5 5 0 0 0 1 1 0 0 0 1 1 0 0 1 1 0 0 1 1	7 0 0 0 0 0 1 0 0 0 0 0 0 0	11 0 0 1 1 0 0 0 0 7 0 0 0 1 1	9 1 1 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0	Precision  0.7368 0.9958 0.9357 0.9091 0.6757 0.8636 0.2917 1.0000 0.5833 0.5000 0.2222 0.4286	Recall 0.8721 0.9793 0.9161 0.8108 0.5814 0.8382 0.4667 0.5556 0.3333 0.3529 0.1429 0.2500	F-score  0.7988 0.9875 0.9258 0.8571 0.6250 0.8507 0.3590 0.7143 0.4242 0.4138 0.1739 0.3158	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	2 ap PC 266 0 7 5 4 1 1 9 0 0 2 5 3 3	5 237 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	16 0 0 90 0 0 1 0 1 0	12 0 0 0 25 6 0 0 0	3 0 1 0 4 57 0 0 0 0	5 0 0 0 1 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 1 0 0 0	11 0 0 1 1 0 0 0 0 7 0 0 0 0 0	9 1 1 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 1 0 0 0 0 0 0 0 0 0 0 3	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0	Precision  0.7368 0.9958 0.9357 0.9091 0.6757 0.8636 0.2917 1.0000 0.5833 0.5000 0.2222	Recall 0.8721 0.9793 0.9161 0.8108 0.5814 0.8382 0.4667 0.5556 0.3333 0.3529 0.1429	F-score  0.7988 0.9875 0.9258 0.8571 0.6250 0.8507 0.3590 0.7143 0.4242 0.4138 0.1739	

Figure C.10: Experiment Run 50: Emoticons Unrecognized

Figures C.11 through C.20 show the results of corresponding experiment runs with emoticons tagged as "UH" per Forsyth's methodology.

Using Actua						/ 6	/-												
,	Sig.	Jernerit Sys	Sell Cles	et Emot	Jon VIO	estion	Mestion Acc	SQ ANG	EMP	nasis oni	Reigh	Ct Mrs	wet nanst	vet Clarif	Othe	Precision	<u>Recall</u>	F-score	Overall Accuracy
Statement	301	4	4	11	10	4	6	6	13	11	6	3	2	2	1	0.7839	0.8853	0.8315	85.41%
System	1	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9964	0.9821	0.9892	
Greet	14	0	118	2	0	0	0	1	0	0	0	1	0	0	0	0.8676	0.9593	0.9112	
Emotion	2	0	0	97	0	0	0	0	1	1	0	0	0	0	0	0.9604	0.8584	0.9065	
ynQuestion	4	1	1	0	43	6	0	0	1	0	1	0	0	0	0	0.7544	0.7288	0.7414	
whQuestion	1	0	0	0	6	47	0	0	1	0	0	0	0	0	0	0.8545	0.8246	0.8393	
Accept	6	0	0	1	0	0	12	0	0	0	0	2	0	0	0	0.5714	0.5714	0.5714	
Bye	1	0	0	1	0	0	0	18	1	0	0	0	0	0	0	0.8571	0.7200	0.7826	
Emphasis	2	0	0	1	0	0	1	0	5	0	0	0	0	0	0	0.5556	0.2174	0.3125	
Continuer	1	0	0	0	0	0	0	0	0	4	0	1	0	1	0	0.5714	0.2353	0.3333	
Reject	6	0	0	0	0	0	1	0	1	1	3	0	1	0	0	0.2308	0.3000	0.2609	
yAnswer	0	0	0	0	0	0	1	0	0	0	0	5	0	0	0	0.8333	0.4167	0.5556	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1.0000	0.4000	0.5714	
Ol ::	_	_	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	0.0000	undef	
Clarify	0	0	U	U	U	0													
Other Using Chea	1 ap PC	0 OS tags	0	0	0	0	0	0	0	0	0	0	0	0	1	0.5000	0.5000	0.5000	
Other	1 ap PC	0 OS tags	0	0	0	0	0	0	0	0	0	0				0.5000			
Other Using Chea	1 ap PC	0 OS tags	0	o Ernot	O VION	0	0	0	0 Empl	0 nasis	0	0				0.5000 Precision	0.5000 Recall	0.5000 F-score	Overall A
Other Using Chea	1 ap PC	OS tags	O S GREET GREET	0 Et frindi	0 VION VION 14	0 estion 4	0 Auestion 7	0 8 4	0 Empl	0 Rasis	0 Reight Reigh	O VANS	net ranst	daitt	Othe 1	0.5000 Precision 0.7655	0.5000 Recall 0.8735	0.5000 F-score 0.8159	
Other Using Chea	1 sp PC	OS tags	o S S S S S S O	0 Et	O VION	0 estion 4 0	0 presion 7 0	O O	0 4 (1) 14 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 Reigh	O VARIES	nars <sup>1</sup>	Claif	Other 1 0	0.5000 Precision 0.7655 0.9892	0.5000 Recall 0.8735 0.9857	0.5000 <b>F-score</b> 0.8159 0.9875	
Other Using Chea	1 pp PC cyc. 297 1 13	OS tags	O S GREET GREET	0 12 2 3	0 14 0 0	0 estion 4 0 1	0 Duesion PCCO	0 8 8 8 0 1	0 		O O O O	O O O O	net rans	Call Call	Other 1 0 0	0.5000 Precision 0.7655 0.9892 0.8667	0.5000 Recall 0.8735 0.9857 0.9512	0.5000 F-score 0.8159 0.9875 0.9070	
Other Using Chea	1 pp PC 297 1 13 2	OS tage	o S S S S S S O	0 Et	0 0 14 0 0 0 0	0 estion 4 0	0  10  10  10  10  10  10  10  10  10	0 20 4 0	0 4 (1) 14 0		0 References	O VARS	net	Clarify 2 0	0 0 0 0	0.5000 Precision 0.7655 0.9892 0.8667 0.9592	0.5000 Recall 0.8735 0.9857	0.5000 <b>F-score</b> 0.8159 0.9875	
Other Using Chea Statement System Greet Emotion	1 pp PC cyc. 297 1 13	0 0S tags 0S tags 4 276 0	0 5 5 0 117	0 12 2 3	0 14 0 0	0 estion 4 0 1	0 Duesion PCCO	0 8 8 8 0 1	0 		O O O O	O O O O	net rans	Call Call	Other 1 0 0	0.5000 Precision 0.7655 0.9892 0.8667	0.5000 Recall 0.8735 0.9857 0.9512	0.5000 F-score 0.8159 0.9875 0.9070	
Other Using Chea Statement System Greet Emotion ynQuestion	1 pp PC 297 1 13 2	0 0S tags 15 tags 16 tags 17 tags 18 tags	0 5 5 0 117	0 timb	0 0 14 0 0 0 0	0 sesion 4 0 1 0	0  10  10  10  10  10  10  10  10  10	0 4 0 1	0		O O O	O VARS	net	Chair	0 0 0 0	0.5000 Precision 0.7655 0.9892 0.8667 0.9592	0.5000 Recall 0.8735 0.9857 0.9512 0.8319	0.5000 F-score 0.8159 0.9875 0.9070 0.8910	
Other Using Chea Statement System Greet	1 2 9	0 OS tags OS tags 4 276 0 0	0 S S S S S S S S S S S S S S S S S S S	0	0 14 0 0 0 38	0 estion 4 0 1 0 4	0  Description  To 0  O 0  O 0	0 22 8 6 4 0 1 0 0	0		0  Reference of the control of the c	0 0 0 0 0 0 0	ranger ra	Clair Clair 2 0 0 0	0 0 0 0 0 0	0.5000 Precision 0.7655 0.9892 0.8667 0.9592 0.7170	0.5000 Recall 0.8735 0.9857 0.9512 0.8319 0.6441	0.5000 F-score 0.8159 0.9875 0.9070 0.8910 0.6786	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion	1 sap PC 297 1 13 2 9 0	0 OS tags OS tags 276 0 0 0	0 S S S S S S S S S S S S S S S S S S S	0 12 2 3 94 0 0	0 0 14 0 0 0 0 38 6	0 estion 4 0 1 0 4 48	O D D O O	0 4 0 1 0 0	0		O O O O	0	2 0 0 0 0 0 0	Contract Con	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5000 Precision 0.7655 0.9892 0.8667 0.9592 0.7170 0.8889	0.5000 Recall 0.8735 0.9857 0.9512 0.8319 0.6441 0.8421	0.5000 F-score 0.8159 0.9875 0.9070 0.8910 0.6786 0.8649	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept	1 ap PC 297 1 13 2 9 0 6	0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	0 12 2 3 94 0 0 0 0	0 0 14 0 0 0 0 38 6 0	0 estion 4 0 1 0 4 48 0	0	0 4 0 1 0 0 0	0 0 1 1 0 0 0 0		O O O O O	0 0 0 0 0 4	7. R. C. T. R. C. T. R. C. T.	C'aith	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5000  Precision 0.7655 0.9892 0.8667 0.9592 0.7170 0.8889 0.5238	0.5000 Recall 0.8735 0.9857 0.9512 0.8319 0.6441 0.8421 0.5238	0.5000  F-score  0.8159 0.9875 0.9070 0.8910 0.6786 0.8649 0.5238	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	1 ap PC 297 1 13 2 9 0 6 1	0 0 0 0 0 0 0 0	0 5 5 0 117 0 1 0 0	12 2 3 94 0 0	0 0 14 0 0 0 0 38 6 0 0 0	0	0	0 4 0 1 0 0 0 0	0 0 1 1 0 0 0 1 1 1 0 0 0 1 1 1 1 1 1 1	0 0 1 1 0 0 0 0 0 0 0 0	O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5000 Precision 0.7655 0.9892 0.8667 0.9592 0.7170 0.8889 0.5238 0.9048	0.5000 Recall 0.8735 0.9857 0.9512 0.8319 0.6441 0.8421 0.5238 0.7600	0.5000  F-score 0.8159 0.9875 0.9070 0.8910 0.6786 0.8649 0.5238 0.8261	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	1 sp PC sp P	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5 5 0 117 0 1 0 0	0 12 12 2 3 94 0 0 0 0	0 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0 0 0 0 0 11 0 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0 0 11 0 0 0 0 0 0 0 0 0 0 0 0	O O O O O O O	0 0 0 0 0 0 0 0	2 0 0 0 0 0 0	C'aith C'aith 2 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5000  Precision 0.7655 0.9892 0.8667 0.9592 0.7170 0.8889 0.5238 0.9048 0.4000	0.5000 Recall 0.8735 0.9857 0.9512 0.8319 0.6441 0.8421 0.5238 0.7600 0.1739	0.5000  F-score 0.8159 0.9875 0.9070 0.8910 0.6786 0.8649 0.5238 0.8261 0.2424	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	1 sign PCC 297 1 13 2 9 9 0 6 1 1 3 2 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	0 12 12 2 3 94 0 0 0 0	0 0 1 1	0	0 0 0 0 0 0 11 0 0 0 0	0 4 0 1 0 0 0 0 0 0	0 0 1 1 0 0 1 4 1 1	0 0 11 0 0 0 0 0 0 0 0 4	0 0 8 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 1	2 0 0 0 0 0 0 0	C'aith  C'aith	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5000  Precision 0.7655 0.9892 0.8667 0.9592 0.7170 0.8889 0.5238 0.9048 0.4000 0.4000	0.5000 Recall 0.8735 0.9857 0.9512 0.8319 0.6441 0.8421 0.5238 0.7600 0.1739 0.2353	0.5000  F-score 0.8159 0.9875 0.9070 0.8910 0.6786 0.8649 0.5238 0.8261 0.2424 0.2963	Overall A 84.22%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	1 sp PCC 297 1 13 2 9 0 6 6 1 3 3 2 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	0 12 2 3 94 0 0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0 0 0 0 0 0 11 0 0 0 0 0	0 4 0 1 0 0 0 0 0 0 0	0 0 1 1 0 0 1 4 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 8 0 0 0 0 0 0 0 0 2	0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5000  Precision 0.7655 0.9892 0.8667 0.9592 0.7170 0.8889 0.5238 0.9048 0.4000 0.4000 0.2222	0.5000 Recall 0.8735 0.9857 0.9512 0.8319 0.6441 0.8421 0.5238 0.7600 0.1739 0.2353 0.2000	0.5000  F-score 0.8159 0.9875 0.9070 0.8910 0.6786 0.8649 0.5238 0.8261 0.2424 0.2963 0.2105	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	1 sp PC 297 1 133 2 9 0 6 1 1 3 2 5 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0 12 2 3 94 0 0 0 0 0	0 0 14 0 0 0 38 6 0 0 0 0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 4 0 1 0 0 0 0 0 0 0 0 0 0	0 14 0 0 1 1 0 0 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 8 0 0 0 0 0 0 0 0 2 0	0 0 0 0 0 0 0 0 1 0 0 4 4 0 0 0 0 1 0 0 0 0	2 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.5000  Precision 0.7655 0.9892 0.8667 0.9592 0.7170 0.8889 0.5238 0.9048 0.4000 0.4000 0.2222 0.6667	0.5000 Recall 0.8735 0.9857 0.9512 0.8319 0.6441 0.8421 0.5238 0.7600 0.1739 0.2353 0.2000 0.3333	0.5000  F-score 0.8159 0.9875 0.9070 0.8910 0.6786 0.8649 0.5238 0.8261 0.2424 0.2963 0.2105 0.4444	

Figure C.11: Experiment Run 5: Emoticons Assigned "UH" Tag

Using Actu		s tags		et line	dion yno	Jestion wh	Question Pcce	gt bye	Emp	Conti	Reject	YARS	n Ang	Clairy Clairy	Othe	Precision	Recall	F-score	Overall Accuracy
Statement	282	3	5	15	11	6	9	4	10	7	14	8	3	6	0	0.7363	0.8650	0.7955	
System	0	<b>249</b>	1	12	0	0	0	0	0	0	0	0	0	0	0	0.7363	0.8030	0.7955	03.01%
Greet	12	0	136	2	0	1	0	0	0	1	0	0	0	0	0	0.8947	0.9444	0.9189	
Emotion	3	0	1	93	0	0	0	0	0	0	0	0	0	0	0	0.9588	0.8378	0.8942	
ynQuestion	6	0	1	0	36	4	0	0	0	0	0	1	0	0	0	0.7500	0.7059	0.7273	
whQuestion	3	0	0	1	1	38	0	0	0	0	0	0	0	0	0	0.8837	0.7755	0.8261	
Accept	9	0	0	0	0	0	17	0	0	0	0	3	0	0	0	0.5862	0.6296	0.6071	
Bye	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	1.0000	0.7500	0.8571	
Emphasis	4	0	0	0	2	0	0	0	5	0	0	1	0	0	0	0.4167	0.3125	0.3571	
Continuer	6	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0.3000	0.2727	0.2857	
Reject	1	0	0	0	1	0	0	0	1	0	4	0	3	0	0	0.4000	0.2222	0.2857	
yAnswer	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1.0000	0.2353	0.3810	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1.0000	0.2500	0.4000	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	0.0000	undef	
Other Using Chea				0	0	0	0	0	0	0	0	0	0	0	4	1.0000	1.0000	1.0000	
	ap PO	S tags	<u>-</u> -1									7							
Using Chea	ap PO	S tags	ien de	st tim	Stion And	estion	Question Pcce	No.	Emp	Coni	Reject Asie Co	VARS	nAn:	Clair!	Othe	Precision	Recall	F-score	-
Using Chea	ap PO රුම් 279	S tags	gen Ge	8t 41mg	Stion And	estion who	Ouesion Acce	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Ernol 13	Rasis Conti	Reight Reight	yAnsi 9	ner nere	onei Claiff	Othe 1	Precision 0.7304	Recall 0.8558	<u>F-score</u> 0.7881	
Using Chea	عبر PO جرائط <b>279</b> 2	S tags	gern Gre	2t	Jilon	estion who	Duesion Rece 8	4 0	### 13 0	Resis Confi	Timer Reserved	yAnsi 9 0	nance 1	Clarify 6	Otne 1 0	Precision 0.7304 0.9880	Recall 0.8558 0.9841	F-score 0.7881 0.9861	
Using Chea	900 279 2 10	S tags  S tags  S tags  4  248	5 1 136	2 2 ET	Stion Vinds 12 0 0	d 0 0	Question Acce 8 0	4 0 0	######################################	Control of 1	Release of the control of the contro	9 0 0	nario	Caity 6 0	Othe 1 0 0	Precision 0.7304 0.9880 0.9067	Recall 0.8558 0.9841 0.9444	F-score 0.7881 0.9861 0.9252	
Using Chea Statement System Greet Emotion	279 20 3	S tags    S tags	5 5 1 136	16 0 2 91	12 0 0 0	RESHOT ALL O	Ouesion B 0 1	4 0 0	######################################	7 0 1 0	zeie	9 0 0	nanti nanti 2 0 0	Cairle O	1 0 0 0 1	Precision 0.7304 0.9880 0.9067 0.9479	Recall 0.8558 0.9841 0.9444 0.8273	F-score 0.7881 0.9861 0.9252 0.8835	
Statement System Greet Emotion ynQuestion	279 2 10 3 6	S tags  Engli  4  248  0  0	5 1 136 1	16 0 2 91	12 0 0 0 34	Jesilor Mr 4 0 0 0	Diesign PCC 8 8 0 0 1 0 0	4 0 0 0	######################################	7 0 1 0 0	nue zeie zeie zeie zeie zeie zeie zeie ze	9 0 0 0	2 0 0 0	Cairy Control	0 0 0 1 0	Precision 0.7304 0.9880 0.9067 0.9479 0.7727	Recall 0.8558 0.9841 0.9444 0.8273 0.6667	F-score 0.7881 0.9861 0.9252 0.8835 0.7158	
Statement System Greet Emotion ynQuestion whQuestion	279 2 10 3 6	S tags 4 248 0 0 0	5 1 136 1 0	16 0 2 91 0	12 0 0 0 34	4 0 0 2 43	Diesion Diese Service	4 0 0 0 0	######################################	7 0 1 0 0 0 0	nuei Reco	9 0 0 0 0	7.A.T. 2 0 0 0 0 0 0 0 0	Calify Coalify 6 0 0 0 0 0 0 0	1 0 0 1 0 0	Precision	Recall 0.8558 0.9841 0.9444 0.8273 0.6667 0.8776	F-score 0.7881 0.9861 0.9252 0.8835 0.7158 0.8600	
Statement System Greet Emotion ynQuestion whQuestion Accept	279 2 10 3 6 4 9	S tags  4  248  0  0  0  0	5 1 136 1 0	16 0 2 91 0 1	12 0 0 0 34 3	4 0 0 0 2 43 0	0 0 0 16	4 0 0 0 0	######################################	7 0 1 0 0 0	Reiect Re	9 0 0 0 1 0 2	7, A.M. 7, A.M	Gairy Carry O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8558 0.9841 0.9444 0.8273 0.6667 0.8776 0.5926	F-score 0.7881 0.9861 0.9252 0.8835 0.7158 0.8600 0.5926	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	279 2 10 3 6 4 9	S tags  S tags  4  248  0  0  0  0  0	5 1 136 1 0 0	16 0 2 91 0 1 0 0	12 0 0 0 34 3 0	4 0 0 2 43 0	8 0 0 0 0 0 0	4 0 0 0 0 0 0	######################################	7 0 1 0 0 0	12 0 0 0 0 0 0	9 0 0 0 1 0 2	7. A. P. C. P. P. C. P. C. P. P. P. C. P.	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8558 0.9841 0.9444 0.8273 0.6667 0.8776 0.5926 0.7500	F-score 0.7881 0.9861 0.9252 0.8835 0.7158 0.8600 0.5926 0.8276	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	279 279 2 10 3 6 4 9	S tags 4 248 0 0 0 0 0 0	5 1 136 1 0 0 0	16 0 2 91 0 1 0 0	12 0 0 0 34 3 0 0	4 0 0 0 2 43 0 0	0 0 0 16 0 0	4 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0	7 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0	9 0 0 0 0 1 0 2 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7304  0.9880  0.9067  0.9479  0.7727  0.8431  0.5926  0.9231  0.2500	Recall 0.8558 0.9841 0.9444 0.8273 0.6667 0.8776 0.5926 0.7500 0.1250	F-score 0.7881 0.9861 0.9252 0.8835 0.7158 0.8600 0.5926 0.8276 0.1667	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	279 2 10 3 6 4 9	S tags  S tags  4  248  0  0  0  0  0	5 1 136 1 0 0 0 0	16 0 2 91 0 1 0 0	12 0 0 0 34 3 0	4 0 0 0 2 43 0 0 0	0 0 0 16 0 0 1	4 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0	7 0 1 0 0 0	12 0 0 0 0 0 0	9 0 0 0 1 0 2	7 P.	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8558 0.9841 0.9444 0.8273 0.6667 0.8776 0.5926 0.7500 0.1250 0.2727	F-score 0.7881 0.9861 0.9252 0.8835 0.7158 0.8600 0.5926 0.8276 0.1667 0.2857	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	279 200 300 600 400 900 1000 1000 1000 1000 1000 1000	S tags  4  248  0  0  0  0  0  0  0  0	5 1 136 1 0 0 0	16 0 2 91 0 1 0 0 0	12 0 0 0 34 3 0 0	4 0 0 0 2 43 0 0	0 0 0 16 0 0	4 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0	7 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0	9 0 0 0 1 0 2 0 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7304  0.9880  0.9067  0.9479  0.7727  0.8431  0.5926  0.9231  0.2500	Recall 0.8558 0.9841 0.9444 0.8273 0.6667 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778	F-score  0.7881 0.9861 0.9252 0.8835 0.7158 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	279 2 10 3 6 4 9 1 4 6 1	S tags 4 248 0 0 0 0 0 0 0 0	5 1 136 1 1 0 0 0 0 0	16 0 2 91 0 0 0 0 0	12 0 0 0 34 3 0 0 1	4 0 0 0 2 43 0 0 0 0 0	0 0 0 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0	7 0 1 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 1 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7304  0.9880  0.9067  0.9479  0.7727  0.8431  0.5926  0.9231  0.2500  0.3000  0.4545	Recall 0.8558 0.9841 0.9444 0.8273 0.6667 0.8776 0.5926 0.7500 0.1250 0.2727	F-score 0.7881 0.9861 0.9252 0.8835 0.7158 0.8600 0.5926 0.8276 0.1667 0.2857	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	279 2 10 3 6 4 9 1 4 6 1	S tags 4 248 0 0 0 0 0 0 0 0 0	55 11 1366 1 1 0 0 0 0 0 0 0	16 0 2 91 0 1 0 0 0 0 0	12 0 0 0 34 3 0 0 1 0	4 0 0 0 2 43 0 0 0 0 0 0 0 0 0 0 0	0 0 0 16 0 0 1 1 0 1 1	4 0 0 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0	7 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 1 0 0	2 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7304  0.9880  0.9067  0.9479  0.7727  0.8431  0.5926  0.9231  0.2500  0.3000  0.4545  0.8000	Recall 0.8558 0.9841 0.9444 0.8273 0.6667 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778 0.2353	F-score  0.7881 0.9861 0.9252 0.8835 0.7158 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448 0.3636	Overall A 83.14%

Figure C.12: Experiment Run 10: Emoticons Assigned "UH" Tag

Using Actu	/		eet Lit	otion yno	estion	Diestion Pcce	igt /	Emp	lasis Cont	Reject Property	y Arsi	nAne nAne	onet Clarity	Othe				Overall
	/5/	S/ C	<u> /                                   </u>	/ 4/	111	/ P <sup>Q</sup> /	<u> </u>	<u> </u>	/ G/	/ 20/	4/		/ 0 /			<u>Recall</u>	F-score	Accuracy
Statement	265	6 8		11	5	5	4	8	9	11	3	4	0	0	0.7361	0.8833	0.8030	83.58%
System	1 23			-	0	0	0	0	0	0	0	0	0	0	0.9874	0.9711	0.9792	
Greet	8	0 119		1	0	0	2	0	0	0	0	0	0	0	0.9084	0.9084	0.9084	
Emotion	3	0 (		0	0	1	0	0	0	0	0	0	0	0	0.9574	0.7826	0.8612	
ynQuestion	9	1 1			3	0	0	0	0	0	0	0	0	0	0.7500	0.6885	0.7179	
whQuestion	2	0 (		5	40	0	0	1	0	0	0	0	0	0	0.8163	0.8333	0.8247	
Accept	6	0 (		0	0	6	0	0	1	1	0	0	0	0	0.4000	0.3750	0.3871	
Bye	0	0 (		-	0	0	12	0	0	0	0	0	0	0	1.0000	0.6667	0.8000	
Emphasis	2	0 1		0	0	0	0	9	0	0	0	0	0	0	0.6923	0.4500	0.5455	
Continuer	2	0 (		_	0	0	0	1	6	0	0	0	0	0	0.5455	0.3529	0.4286	
Reject	1	0 (	_	-	0	1	0	1	0	5	0	1	0	0	0.5556	0.2778	0.3704	
yAnswer	0	0 (	_		0	3	0	0	1	0	6	0	0	0	0.6000	0.6667	0.6316	
nAnswer	1	0 (	_	-	0	0	0	0	0	1	0	4	0	0	0.6667	0.4444	0.5333	
Clarify	0	0 (	0	0	0	0	0	0	0	0	0	0	0	0	undef	undef	undef	
Other Using Chea			0		0	0	0	0	0	0	0	0	0	1	1.0000	1.0000	1.0000	
	ap POS ta	ags														1.0000	1.0000	
	ap POS ta	ags														1.0000		Overall A
L	ap POS ta	ags	88° 45	0 O O O O O O O O O O O O O O O O O O O														
Using Chea	ap POS ta	ags  A  A  B  B  C  B  C  C  C  C  C  C  C  C  C	24	ndion Viol	estor un 6 0	Duestion Acce 4	By Phe	Emp	lasis Coni	Deile C	VANS	nane	O O	Other	Precision	Recall	F-score	
Using Chea	ap POS ta	ags	24	odion (notion) 16	Jestion who	The sign of the si	Ri OPE	Emgl 11	g Spirit	nuet Relect	yAnsi 4 0 0	ner nere	nei Claiff	Othe	Precision 0.7167	Recall 0.8600	<u>F-score</u> 0.7818	
Using Chea	ap POS to	ags  A  A  B  B  C  B  C  C  C  C  C  C  C  C  C	24	16 0 1	estor un 6 0	Duestion Acce 4	\$\frac{1}{2} \text{\$\frac{1}{2} \text{\$\frac{1} \text{\$\frac{1} \text{\$\frac{1} \text{\$\frac{1} \text{\$\frac{1} \text{\$\frac{1}	#### 11 0	Resis Conti	Ruei Reigi	VANS	nane	O O	Other O	Precision 0.7167 0.9917	Recall 0.8600 0.9835	F-score 0.7818 0.9876	
Statement System Greet Emotion	ap POS to 550 POS to 5	ags 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	24 0 0 0 88	16 0 1	Bestion 6 0 0 0 1	A D D	5 0 1		Onti Oorti	Relection of the control of the cont	4 0 0 0 0 0 0	nare d	O O O	Office O	Precision	Recall 0.8600 0.9835 0.9466	F-score 0.7818 0.9876 0.9323	
Statement System Greet Emotion ynQuestion	ap POS to 55	ags  4 5  88 (0 124  0 (0 124	24 0 0 88 0 0	16 0 1	estion 6 0 0	Diesion Design of the control of the	5 0 1		g O O O	Tuet Reservation of the contract of the contra	4 0 0 0	7,2,12,12,14,14,14,14,14,14,14,14,14,14,14,14,14,	O O O	0 0 0 0	Precision	Recall 0.8600 0.9835 0.9466 0.7652	F-score 0.7818 0.9876 0.9323 0.8544	
Using Chea	258 2 23 9 2 11	ags 4 5 68 (0 124 0 (0 0 ) 124	88 0 0 1	16 0 1 0 36	Bestion 6 0 0 0 1	Diesilot 4 0 0 1 0	5 0 1 0	######################################	9 0 0 0 0 0	nuet zeec'	4 0 0 0 0 1 2	7,8,11 <sup>2</sup> 4  0  0  0  0  0	O O O O	0 0 0 0 0 0	0.7167 0.9917 0.9185 0.9670 0.7347	Recall 0.8600 0.9835 0.9466 0.7652 0.5902	F-score 0.7818 0.9876 0.9323 0.8544 0.6545	
Statement System Greet Emotion ynQuestion whQuestion	258 2 25 9 2 11 3	ags  4 5  88 (0 124  0 (0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	24 0 0 0 88 0 1 0 0	16 0 1 0 36 7	6 0 0 1 40	Diesion Design of the control of the	5 0 1 0 0	######################################	9 0 0 0	10 0 0 0	4 0 0 0 0	7,2,12,12,14,14,14,14,14,14,14,14,14,14,14,14,14,	Calify Control	0 0 0 0 0	0.7167 0.9917 0.9185 0.9670 0.7347 0.7547	Recall 0.8600 0.9835 0.9466 0.7652 0.5902 0.8333	F-score 0.7818 0.9876 0.9323 0.8544 0.6545 0.7921	
Statement System Greet Emotion ynQuestion whQuestion Accept	258 2 23 9 2 11 3 6	ags 4 5 88 (0 124 0 (0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	24 0 0 88 0 0 1 0 0 0 0 0	16 0 1 0 36 7	6 0 0 1 40	Desiration 4 0 0 0 1 0 0 7	5 0 1 0 0	######################################	9 0 0 0 0 0	Reject 10 0 0 0 0 0 0 1	4 0 0 0 0 1 2	7,8,11 <sup>2</sup> 4  0  0  0  0  0	O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7167 0.9917 0.9185 0.9670 0.7347 0.7547 0.4118	Recall 0.8600 0.9835 0.9466 0.7652 0.5902 0.8333 0.4375	F-score 0.7818 0.9876 0.9323 0.8544 0.6545 0.7921 0.4242	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	258 2 23 9 2 11 3 6	ags 4 5 88 (0 124 0 (0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	88 0 0 0 1 0 0 0 0 0 1 0 0 0 1 0 0	16 0 1 0 36 7 0	6 0 0 0 1 40 0	Desiron 4 0 0 0 1 0 0 7 0 0	5 0 1 0 0 0 0	######################################	9 0 0 0 0 0	10 0 0 0 0 0 0	4 0 0 0 0 1 2 0 0	7, R. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	O O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7167 0.9917 0.9185 0.9670 0.7347 0.7547 0.4118 1.0000	Recall 0.8600 0.9835 0.9466 0.7652 0.5902 0.8333 0.4375 0.6667	F-score 0.7818 0.9876 0.9323 0.8544 0.6545 0.7921 0.4242 0.8000	Overall A 82.49%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	258 2 23 9 2 11 3 6 0 2	ags  4	24 0 0 0 88 0 1 0 0 0 0 0 0 0 0 0 0 0 0	16 0 1 0 36 7 0 0	6 0 0 1 40 0 0	1	5 0 1 0 0 0 0 0	11 0 0 0 0 1 0 0 7	9 0 0 0 0 0 0	10 0 0 0 0 0 0	4 0 0 0 0 0 1 1 2 0 0 0 0	7, R. T. T. R. T.	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7167 0.9917 0.9185 0.9670 0.7347 0.7547 0.4118 1.0000 0.6364	Recall	F-score  0.7818 0.9876 0.9323 0.8544 0.6545 0.7921 0.4242 0.8000 0.4516	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	ap POS to State TRE State	ags 4	6 24 0 0 4 0 0 88 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 1 0 36 7 0 0 0	6 0 0 0 1 40 0 0	1	5 0 1 0 0 0 0 12 0	######################################	9 0 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0	4 0 0 0 0 1 2 0 0	7.P.T. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7167 0.9917 0.9185 0.9670 0.7347 0.7547 0.4118 1.0000 0.6364 0.5455	Recall	F-score  0.7818 0.9876 0.9323 0.8544 0.6545 0.7921 0.4242 0.8000 0.4516 0.4286	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	258 2 23 9 2 11 3 6 0 2 4 2	ags  4	24 0 0 0 88 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 1 0 36 7 0 0 0 0	6 0 0 0 1 1 40 0 0 0 0 1 1	1	5 0 1 0 0 0 0 12 0	11 0 0 0 0 1 0 0 0 7 0 1	9 0 0 0 0 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0 0	0 0 0 0 0 0 0 0 1	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7167 0.9917 0.9185 0.9670 0.7347 0.7547 0.4118 1.0000 0.6364 0.5455 0.5000	Recall	F-score  0.7818 0.9876 0.9323 0.8544 0.6545 0.7921 0.4242 0.8000 0.4516 0.4286 0.4000	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	258 2 23 9 2 11 3 6 0 2 4 2 0	ags 4	24 0 0 1 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0	16 0 1 0 36 7 0 0 0 0	6 0 0 0 1 1 40 0 0 0 0 0 0 0 0 0 0 0 0 0	1	5 0 1 0 0 0 0 12 0 0 0	11 0 0 0 0 1 0 0 0 1 0 0 1 0 0 0 1 0 0 0 0 1 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7167 0.9917 0.9185 0.9670 0.7347 0.7547 0.4118 1.0000 0.6364 0.5455 0.5000 0.3333	Recall	F-score  0.7818 0.9876 0.9323 0.8544 0.6545 0.7921 0.4242 0.8000 0.4516 0.4286 0.4000 0.2667	

Figure C.13: Experiment Run 15: Emoticons Assigned "UH" Tag

Using Actu	czó	Jernent Sys	$\overline{}$	zi Endi	Jon Villa	estion	Mestion Acc	ed by	End	asis Conti	Reik Reik	St VANS	net riArist	yet Clarit	N Othe	Precision	Recall	F-score	Overall Accuracy
Statement	282	4	8	17	10	4	8	5	13	9	6	2	1	0	1	0.7622	0.8952	0.8234	84.71%
System	2	256	1	0	0	0	0	0	0	0	0	0	0	0	0	0.9884	0.9846	0.9865	
Greet	11	0	131	4	0	1	0	1	0	1	1	0	0	0	0	0.8733	0.8973	0.8851	
Emotion	1	0	1	81	0	0	2	0	0	0	0	0	0	0	0	0.9529	0.7714	0.8526	
ynQuestion	2	0	2	0	37	1	0	0	1	0	0	0	0	0	0	0.8605	0.7400	0.7957	
whQuestion	2	0	0	0	3	38	0	0	0	0	0	0	0	0	0	0.8837	0.8636	0.8736	
Accept	5	0	0	1	0	0	15	0	1	0	3	0	0	0	0	0.6000	0.5556	0.5769	
Bye	1	0	1	0	0	0	1	13	0	0	0	0	0	0	0	0.8125	0.6842	0.7429	
Emphasis	2	0	2	1	0	0	0	0	11	0	1	0	0	0	0	0.6471	0.4074	0.5000	
Continuer	1	0	0	0	0	0	0	0	0	4	0	1	0	0	0	0.6667	0.2667	0.3810	
Reject	4	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0.2857	0.1333	0.1818	
yAnswer	1	0	0	1	0	0	1	0	0	0	0	6	0	0	0	0.6667	0.6000	0.6316	
nAnswer	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0.2500	0.5000	0.3333	
Clarify	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.0000	undef	undef	
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1.0000	0.8000	0.8889	
Other Using Chea	ap PC	S tags	3														0.8000	0.8889	
Using Chea	ap PC		S Gree	ž kroj	Jon Andi	estion	alestion Acc		Emp	, asis	Reik	ot VANS	net naries	Juet Clarit	d Other	Precision	Recall	F-score	
	ap PC	OS tags	S CHE CHE S	ži troj 21	uon vion 8	estion 3	Aresitor Acc	edi pre	Empl 15	iasis Coni 10	nuet Reight	ot yarsi	narisi 1	Olarit Olarit	H Othe	Precision 0.7480	<b>Recall</b> 0.8762	<u>F-score</u> 0.8070	
Using Chea	عبر من	S tags	S S S S S S S S S S S S S S S S S S S	21 0	Mary Mary Williams 8	sesion who	Auestion PCC 8	8 × × × × × × × × × × × × × × × × × × ×	Empl 15 0	Conii 10	Reight Peig	OT VANS	nansi 1 0	Chair Chair	Others	Precision 0.7480 0.9884	Recall 0.8762 0.9846	F-score 0.8070 0.9865	
Using Chea	عبر المجاورة	OS tags  Leftert  4  256	8 1 132	21 0 2	THOM WILLIAM O	section of the sectio	Acc.	4 0 0	15 0 0	Continue of the continue of th	Delegation of the control of the con	TANGO O	ransi 1 0	Catif	3 0 0	Precision 0.7480 0.9884 0.9167	Recall 0.8762 0.9846 0.9041	F-score 0.8070 0.9865 0.9103	
Statement System Greet Emotion	276 276 2	256 0	8 1 132	21 0 2 78	THE	ship and a second secon	RCC 8	4 0 0 0	15 0 0		S O 1	3 0 0	naret naret 1 0 0 0	O O O	3 0 0	Precision	Recall 0.8762 0.9846 0.9041 0.7429	F-score 0.8070 0.9865 0.9103 0.8387	
Using Chean Statement System Greet Emotion	276 276 2 7	OS tags  OS tags  OS tags  OS tags  OS tags	8 1 132 1	21 0 2 78 0	8 0 0 0	3 0 1 0	RCC PCCC PCCC PCCC PCCC PCCC PCCC PCCC	4 0 0 0	15 0 0 0	10 0 0 0	Delegation of the control of the con	7 Ansi 3 0 0 0 0 0 0	TARSINET TARSON OF THE PROPERTY OF THE PROPERT	O O O O	3 0 0 0 1	Precision  0.7480  0.9884  0.9167  0.9630  0.7674	Recall 0.8762 0.9846 0.9041 0.7429 0.6600	F-score 0.8070 0.9865 0.9103 0.8387 0.7097	
Using Chea	276 276 2 7 1 6	256 0	8 1 132 1 0	21 0 2 78 0 1	THE	3 0 1 0 1 38	RCC	4 0 0 0	15 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 1 0 0 0	5 0 1 0 0 0	7 NATS	1 0 0 0 0 0 0 0	Clariff O O O O	3 0 0 0 0	Precision  0.7480 0.9884 0.9167 0.9630 0.7674 0.7451	Recall 0.8762 0.9846 0.9041 0.7429 0.6600 0.8636	F-score 0.8070 0.9865 0.9103 0.8387 0.7097 0.8000	
Statement System Greet Emotion ynQuestion	276 276 2 7 1 6	256 0 0 0	8 1 132 1 1 0 0	21 0 2 78 0 1	8 0 0 0 33 9	3 0 1 0 1 38	8 0 0 1 0 0	4 0 0 0 0 0	######################################	10 0 1 0 0 0	5 0 1 0 0 3	VANS 3 0 0 0 0 0 1	1 0 0 0 0 0 0 0 0 0	O O O O O	3 0 0 0 0 1 0	Precision  0.7480 0.9884 0.9167 0.9630 0.7674 0.7451 0.5667	Recall 0.8762 0.9846 0.9041 0.7429 0.6600 0.8636 0.6296	F-score 0.8070 0.9865 0.9103 0.8387 0.7097	
Statement System Greet Emotion ynQuestion whQuestion	276 276 2 7 1 6 3 7	256 0 0	8 1 132 1 1 0 0 1 1	21 0 2 78 0 1 1	8 0 0 0 33 9	3 0 1 0 1 38 0 0	8 0 0 1 1 0 0 17 0	4 0 0 0 0	######################################	10 0 0 0 0 0 0	5 0 0 0 0 0	3 3 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	3 0 0 0 0 1 0 0	Precision  0.7480 0.9884 0.9167 0.9630 0.7674 0.7451	Recall 0.8762 0.9846 0.9041 0.7429 0.6600 0.8636 0.6296 0.7895	F-score 0.8070 0.9865 0.9103 0.8387 0.7097 0.8000 0.5965 0.8571	
Statement System Greet Emotion ynQuestion whQuestion Accept	276 276 2 7 1 6	256 0 0 0	8 1 132 1 1 0 0	21 0 2 78 0 1	8 0 0 0 33 9	3 0 1 0 1 38	8 0 0 1 0 0	4 0 0 0 0 0	######################################	10 0 1 0 0 0	5 0 1 0 0 3	VANS 3 0 0 0 0 0 1	1 0 0 0 0 0 0 0 0 0	O O O O O	3 0 0 0 0 1 0	Precision  0.7480 0.9884 0.9167 0.9630 0.7674 0.7451 0.5667	Recall 0.8762 0.9846 0.9041 0.7429 0.6600 0.8636 0.6296	F-score  0.8070 0.9865 0.9103 0.8387 0.7097 0.8000 0.5965	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	276 276 2 7 1 6 3 7 0	256 0 0 0 0	8 1 132 1 1 0 0 1 2	21 0 2 78 0 1 1 0	8 0 0 0 33 9 0 0	3 0 1 0 1 38 0 0 0	8 0 0 1 0 0 17 0 0	4 0 0 0 0 0 0 0 0	######################################	10 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0	Precision  0.7480 0.9884 0.9167 0.9630 0.7674 0.7451 0.5667 0.9375 0.6000 0.6667	Recall 0.8762 0.9846 0.9041 0.7429 0.6600 0.8636 0.6296 0.7895 0.3333 0.2667	F-score  0.8070 0.9865 0.9103 0.8387 0.7097 0.8000 0.5965 0.8571 0.4286 0.3810	<u>Overall A</u> 83.27%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	276 276 277 1 6 3 7 0 3 1	256 0 0 0 0 0	8 1 132 1 1 0 0 0 1 2 0 0 0	21 0 2 78 0 1 1 0 0	8 0 0 0 33 9 0 0	3 0 1 1 38 0 0 0 0 0	8 0 0 0 1 0 0 0 17 0 0 0	4 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9	10 0 0 0 0 0 0 0 0	5 0 1 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 1 0 0	1 0 0 0 0 0 0	0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7480 0.9884 0.9167 0.9630 0.7674 0.7451 0.5667 0.9375 0.6000	Recall 0.8762 0.9846 0.9041 0.7429 0.6600 0.8636 0.6296 0.7895 0.3333	F-score  0.8070 0.9865 0.9103 0.8387 0.7097 0.8000 0.5965 0.8571 0.4286 0.3810 0.1818	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	276 276 2 7 1 6 3 7 0 3 1 4	256 0 0 0 0 0 0	8 1 132 1 1 0 0 0 1 2 0 0 0 0 0	21 0 2 78 0 1 1 0 0 1	8 0 0 0 33 9 0 0	3 0 1 0 1 38 0 0 0	8 0 0 1 0 0 17 0 0 0	4 0 0 0 0 0 0 0 0	######################################	10 0 0 0 0 0 0 0	5 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0	Precision  0.7480 0.9884 0.9167 0.9630 0.7674 0.7451 0.5667 0.9375 0.6000 0.6667 0.2857 0.4444	Recall 0.8762 0.9846 0.9041 0.7429 0.6600 0.8636 0.6296 0.7895 0.3333 0.2667 0.1333 0.4000	F-score  0.8070 0.9865 0.9103 0.8387 0.7097 0.8000 0.5965 0.8571 0.4286 0.3810	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	276 276 277 1 6 3 7 0 3 1	256 0 0 0 0 0 0	8 1 132 1 1 0 0 0 1 2 0 0 0	21 0 2 78 0 1 1 0 0	8 0 0 0 33 9 0 0 0 0	3 0 1 1 38 0 0 0 0 0	8 0 0 0 1 0 0 0 17 0 0 0	4 0 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9	10 0 0 0 0 0 0 0 0	5 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 1 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7480 0.9884 0.9167 0.9630 0.7674 0.7451 0.5667 0.9375 0.6000 0.6667 0.2857	Recall 0.8762 0.9846 0.9041 0.7429 0.6600 0.8636 0.6296 0.7895 0.3333 0.2667 0.1333	F-score  0.8070 0.9865 0.9103 0.8387 0.7097 0.8000 0.5965 0.8571 0.4286 0.3810 0.1818	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	276 276 2 7 1 6 3 7 0 3 1 4	256 0 0 0 0 0 0 0	8 1 132 1 1 0 0 0 1 2 0 0 0 0 0	21 0 2 78 0 1 1 0 0 1	8 0 0 0 33 9 0 0 0	3 0 1 1 38 0 0 0 0 0 0 0	8 0 0 1 0 0 17 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9 0	10 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 1 0 0 0 4	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7480 0.9884 0.9167 0.9630 0.7674 0.7451 0.5667 0.9375 0.6000 0.6667 0.2857 0.4444	Recall 0.8762 0.9846 0.9041 0.7429 0.6600 0.8636 0.6296 0.7895 0.3333 0.2667 0.1333 0.4000	F-score  0.8070 0.9865 0.9103 0.8387 0.7097 0.8000 0.5965 0.8571 0.4286 0.3810 0.1818 0.4211	

Figure C.14: Experiment Run 20: Emoticons Assigned "UH" Tag

Using Actu		S tags		et fine	Jion Viol	Jestion Jestion	Due stion	gt Emg	ANE BYE	Conti	Reject	YATS!	nAne nAne	other other	Clait	Precision	Recall	F-score	Overall Accuracy
Statement	250	4	6	18	8	1	7	9	6	8	11	0	4	0	4	0.7440	0.8224	0.7813	
System	3	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9892	0.9857	0.9874	02.0070
Greet	17	0	116	1	1	0	0	0	3	1	0	0	0	0	0	0.8345	0.9063	0.8689	
Emotion	6	0	0	106	0	0	2	0	0	0	0	0	0	0	0	0.9298	0.8346	0.8797	
ynQuestion	7	0	2	0	38	2	0	0	0	0	0	0	0	0	0	0.7755	0.7308	0.7525	
whQuestion	4	0	1	0	4	39	0	1	0	0	0	0	0	0	0	0.7959	0.9070	0.8478	
Accept	7	0	0	1	0	0	5	0	0	0	0	3	0	0	0	0.3125	0.2632	0.2857	
Emphasis	3	0	2	1	0	0	1	7	1	0	0	0	0	0	0	0.4667	0.3889	0.4242	
Bye	2	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0.8750	0.5600	0.6829	
Continuer	2	0	0	0	0	0	0	1	0	4	0	1	0	0	0	0.5000	0.2857	0.3636	
Reject	2	0	0	0	0	1	0	0	0	0	4	0	2	0	0	0.4444	0.2667	0.3333	
yAnswer	0	0	1	0	1	0	4	0	0	0	0	3	0	0	0	0.3333	0.4286	0.3750	
nAnswer	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0.5000	0.2500	0.3333	
Other	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.0000	0.0000	undef	
Clarify Using Che				0	0	0	0	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
,,,	 ар РО	S tags	3									7							
Using Che	ap PO	S tags	3	et tim	Jilon Villa	Jestion wh	Question Acce	igt kingl	BYE /	Conii	Reject Reject	VARS	nane nane	unet Other	Clarit	Precision	Recall	F-score	Overall A
Using Che	ap PO රුම් 260	S tags	S Serri Green	20 20	otion viol	destion 1	Quesion 7	gi trugi 11	Bye 8	Conii	geec 9	yAnsi 2	ner nere	net Offici	Chairt 4	Precision 0.7345	Recall 0.8553	<u>F-score</u> 0.7903	-
Using Che	ap PO	S tags	ETT GREAT	20 0	Jilon Vino	Jestion 1	Quesion 7 0		Rajis Bye 8 0	Continue 9	Resp.	VARSI 2 0	nani 5	o Otter	Clarit 4 0	Precision 0.7345 0.9928	Recall 0.8553 0.9857	F-score 0.7903 0.9892	
Using Chean Statement System Greet	ap PO  260 2 16	S tags  S tags  275	7 0 116	20 0 0	Stion Vinch	Lesion 1	Question 7 7 0		8 0 3	Conti	Reign P	7 AMOS 2 0 0	naret naret 5 0	other of o	Coait 4 0 0	Precision 0.7345 0.9928 0.8406	Recall 0.8553 0.9857 0.9063	F-score 0.7903 0.9892 0.8722	
Statement System Greet Emotion	ap PO  260 2 16 4	2S tags 275 0 0	7 0 116	20 0 0 106	ynd ynd 8 0 1 1 0	Jestion 1 0 1	Quesitor 7 7 0 0		8 0 3 0	CORT 9 0 1 1 0	Aeie, de la company de la comp	2 0 0	nanti nanti 5 0 0	Ottes O O O	0 0 0	Precision 0.7345 0.9928 0.8406 0.9464	Recall 0.8553 0.9857 0.9063 0.8346	F-score 0.7903 0.9892 0.8722 0.8870	
Statement System Greet Emotion ynQuestion	ap PO  S  260  2  16  4  8	25 tags 275 0 0	7 0 116 0 2	20 0 0 106	8 0 1 0 37	Lestion 1 0 1 0 2	Diedion		8 0 3 0	9 0 1 0 0	geie	2 0 0 0	nanti 5 0 0 0	otret 0 0 0 0	Ozdit 4 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8406 0.9464 0.7551	Recall 0.8553 0.9857 0.9063 0.8346 0.7115	F-score 0.7903 0.9892 0.8722 0.8870 0.7327	
Statement System Greet Emotion ynQuestion whQuestion	ap PO  260 2 16 4 8 2	275 0 0	7 0 116 0 2	20 0 0 106 0	8 0 1 0 37 4	1 0 1 0 2 38	Diesion 7 0 0 0 2 0 0 0	11 0 0 0 0 1	8 0 3 0 0	Conti 9 0 1 0 0	ger aciec	7 PHOST 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Official Off	C'Rail 4 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8406 0.9464 0.7551 0.8261	Recall 0.8553 0.9857 0.9063 0.8346 0.7115 0.8837	F-score 0.7903 0.9892 0.8722 0.8870 0.7327 0.8539	
Statement System Greet Emotion ynQuestion whQuestion Accept	ap PO  260 2 16 4 8 2 6	S tags  S tags  S tags  3  275  0  0  0  0	7 0 116 0 2	20 0 0 106 0	8 0 1 0 37 4 1	1 0 1 0 2 38	7 0 0 2 0 0 5	11 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 3 0 0 0	Conti 9 0 1 0 0 0	Reject Reject	2 0 0 0 0 0	7,1,10° 7,10° 7,10	Otres O O O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8406 0.9464 0.7551 0.8261 0.3125	Recall 0.8553 0.9857 0.9063 0.8346 0.7115 0.8837 0.2632	F-score 0.7903 0.9892 0.8722 0.8870 0.7327 0.8539 0.2857	-
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis	ap PO  260  2 16 4 8 2 6 4	25 tags 275 0 0 0 0 0	7 0 116 0 2 1	20 0 0 0 106 0 0	8 0 1 0 37 4 1 0	1 0 1 0 2 38 0	7 0 0 2 0 0 5	11 0 0 0 0 1 1 0 6	8 0 3 0 0 0 0	CSriii 9 0 0 0 0 0 0 0 0 0 0	general property of the control of t	2 0 0 0 0 0 4 0	7,And	Officer Office	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8406 0.9464 0.7551 0.8261 0.3125 0.4286	Recall 0.8553 0.9857 0.9063 0.8346 0.7115 0.8837 0.2632 0.3333	F-score 0.7903 0.9892 0.8722 0.8870 0.7327 0.8539 0.2857 0.3750	<u>Overall A</u> 83.14%
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye	260 260 2 16 4 8 2 6 4	25 tags 275 0 0 0 0 0 0	7 0 116 0 2 1 0 2	20 0 0 106 0 0 0	8 0 1 0 37 4 1 0 0	1 0 1 0 2 38 0 0	7 0 0 0 0 5 1 0 0	11 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 3 0 0 0 0 0	CONT   9	Particular Reservation of the control of the contro	2 0 0 0 0 0 0 0	7 A. R. C.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8406 0.9464 0.7551 0.8261 0.3125 0.4286 1.0000	Recall 0.8553 0.9857 0.9063 0.8346 0.7115 0.8837 0.2632 0.3333 0.5600	F-score 0.7903 0.9892 0.8722 0.8870 0.7327 0.8539 0.2857 0.3750 0.7179	-
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer	260 260 2 16 4 8 2 6 4	25 tags 275 0 0 0 0 0 0 0	7 0 116 0 2 1 0 0	20 0 0 106 0 0 0	8 0 1 0 37 4 1 0 0	1 0 1 0 2 38 0 0 0 0	7 0 0 0 2 0 0 5 1 0 0 0	11 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 3 0 0 0 0 0 0	9 0 1 0 0 0 0 0		2 0 0 0 0 0 4 0 0	7, A. A. C.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O'88111	Precision 0.7345 0.9928 0.8406 0.9464 0.7551 0.8261 0.3125 0.4286 1.0000 0.8000	Recall 0.8553 0.9857 0.9063 0.8346 0.7115 0.8837 0.2632 0.3333 0.5600 0.2857	F-score 0.7903 0.9892 0.8722 0.8870 0.7327 0.8539 0.2857 0.3750 0.7179	-
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject	260 260 2 16 4 8 2 6 4	3 275 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 116 0 2 1 0 0 0	20 0 0 106 0 0 0	8 0 1 0 37 4 1 0 0 0	1 0 1 0 2 38 0 0 0 0	7 0 0 0 2 0 0 5 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0	9 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Particular Reservation of the control of the contro	2 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8406 0.9464 0.7551 0.8261 0.3125 0.4286 1.0000 0.8000 0.6667	Recall	F-score 0.7903 0.9892 0.8722 0.8870 0.7327 0.8539 0.2857 0.3750 0.7179 0.4211 0.3810	-
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	ap PO  260 2 16 4 8 2 6 4 0 1 0 0	3 275 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 116 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 0 0 106 0 0 0 0 0 0	8 0 1 0 37 4 1 0 0	1 0 1 0 2 38 0 0 0 0 0	7 0 0 0 2 0 0 0 0 0 0 0 0 0 0 4	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8406 0.9464 0.7551 0.8261 0.3125 0.4286 1.0000 0.8000 0.6667 0.1667	Recall	F-score 0.7903 0.9892 0.8722 0.8870 0.7327 0.8539 0.2857 0.3750 0.7179 0.4211 0.3810 0.1538	-
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject	ap PO  260 2 16 4 8 2 6 4 0 1	3 275 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 116 0 2 1 0 0 0	20 0 0 106 0 0 0 0	8 0 1 0 37 4 1 0 0 0	1 0 1 0 2 38 0 0 0 0	7 0 0 0 2 0 0 5 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0	9 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8406 0.9464 0.7551 0.8261 0.3125 0.4286 1.0000 0.8000 0.6667	Recall	F-score 0.7903 0.9892 0.8722 0.8870 0.7327 0.8539 0.2857 0.3750 0.7179 0.4211 0.3810	-

Figure C.15: Experiment Run 25: Emoticons Assigned "UH" Tag

Using Actua		S tags	$\overline{}$	at Emoi	Judy Audi	o who	Jestion Acc	ant Emp	Aye Bye	CONT	Reject Property	y Ansi	net narest	uet lait	d Othe	Precision	<u>Recall</u>	F-score	Overall Accuracy
Statement	288	3	7	20	9	6	16	7	7	12	13	1	1	0	1	0.7366	0.9057	0.8124	83.64%
System	1	273	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9964	0.9891	0.9927	
Greet	12	0	141	1	0	2	1	0	1	1	0	0	0	0	0	0.8868	0.9400	0.9126	
Emotion	3	0	0	72	0	0	0	0	0	0	1	0	0	0	0	0.9474	0.7423	0.8324	
ynQuestion	4	0	1	0	34	6	0	0	0	1	0	0	0	0	0	0.7391	0.6667	0.7010	
vhQuestion	0	0	0	0	7	45	0	0	0	0	0	1	0	0	0	0.8491	0.7627	0.8036	
Accept	3	0	0	2	1	0	7	0	0	0	2	1	0	0	0	0.4375	0.2593	0.3256	
<b>Emphasis</b>	4	0	0	1	0	0	0	3	1	1	0	0	0	0	0	0.3000	0.3000	0.3000	
Bye	0	0	1	0	0	0	1	0	14	0	0	0	0	0	0	0.8750	0.6087	0.7179	
Continuer	1	0	0	0	0	0	0	0	0	5	0	1	0	0	0	0.7143	0.2500	0.3704	
Reject	2	0	0	1	0	0	0	0	0	0	3	1	2	0	0	0.3333	0.1579	0.2143	
yAnswer	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0.6000	0.3750	0.4615	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0.6667	0.4000	0.5000	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1.0000	1.0000	1.0000	
0.1																			
Other Using Chea				0	0	0	0	0	0	0	0	0	0	0	4	1.0000	0.6667	0.8000	
L	p PC	)S tags	6							-1				7					Overall A
Using Chea	p PC	OS tags	Gree Gree	ž Endi	Joh yndi	estion	Jestion Acco	agi kingi	Die Die	Conti	nuet Deleg	J. VANS	nars <sup>1</sup>	over Clarit	H Othe	Precision	Recall	F-score	Overall A
Using Chea	p PC خ <sup>رد</sup> <b>285</b>	OS tags	S Green 9	ži knoj 19	II II	estion who	Jestion ACC	agi tingi	Bile 6	CONTI 9	nuet Reject	yAnsi 4	narsi 1	olarit 1	H Other	Precision 0.7215	Recall 0.8962	<u>F-score</u> 0.7994	
Using Chea	p PC خ <sup>را</sup> <b>285</b>	OS tags	ern Gree	E Emoi 19 0		estion who 8	pesilon PCC 17 0	EQT LIMIT	Rasis Bye 6	Conti	Ruei Qeee	VANS	TATEST 1	Chair	Other 4	Precision 0.7215 0.9964	Recall 0.8962 0.9891	F-score 0.7994 0.9927	
Using Chea Statement System Greet	پر کرد <b>285</b> 1	OS tags  Sternerit  3  273	9 0 138	19 0 1	yrati 11 0	s 0 1	RCC 17	ETT ETTE	6 0 1	Conti	nuet Research	4 0 0	nare nare name of the name of	Call O	Other 4	Precision 0.7215 0.9964 0.9139	Recall 0.8962 0.9891 0.9200	F-score 0.7994 0.9927 0.9169	
Statement System Greet Emotion	285 1 8	273 0	9 0 138	19 0 1 73	11 0 0	B 0 1	PCC 17 0 1 0	7 0 0	6 0 1	CORT 9 0 1 1 0	The state of the s	4 0 0 0	net net net o	Chair	4 0 0 0	Precision 0.7215 0.9964 0.9139 0.9481	Recall 0.8962 0.9891 0.9200 0.7526	F-score 0.7994 0.9927 0.9169 0.8391	
Statement System Greet Emotion ynQuestion	285 1 8 4	OS tags  OS tags  OS tags  OS tags	9 0 138 0	19 0 1 73	11 0 0 0 30	8 0 1 0 4	17 0 1 0 0 0	7 0 0 0 0 0	6 0 1 0	Conti 9 0 1 0	Thrue's Reference of the second secon	1 ARS	TARST 1 0 0 0 0 0	Cath	4 0 0 0 0 0 0	Precision 0.7215 0.9964 0.9139 0.9481 0.7143	Recall 0.8962 0.9891 0.9200 0.7526 0.5882	F-score 0.7994 0.9927 0.9169 0.8391 0.6452	
Statement System Greet Emotion ynQuestion whQuestion	285 1 8 4 5	OS tags  OS tags  OS tags  3  273  0  0  0	9 0 138 0	19 0 1 1 73 0 0 0	11 0 0 0 30 9	8 0 1 0 4 46	17 0 1 0 0 0 0	7 0 0 0 0	6 0 1 0 0	Conti 9 0 1 0 1	THE TRUE TO THE TRUE TRUE TO THE TRUE TO THE TRUE TO THE TRUE TO THE TRUE TO T	4 0 0 0 0	1 0 0 0 0 1		4 0 0 0 0	Precision	Recall 0.8962 0.9891 0.9200 0.7526 0.5882 0.7797	F-score 0.7994 0.9927 0.9169 0.8391 0.6452 0.7863	
Statement System Greet Emotion ynQuestion vhQuestion Accept	285 1 8 4 5 0	0S tags 273 0 0 0 0	9 0 138 0 1	19 0 1 73 0 0	11 0 0 0 30 9	8 0 1 0 4 46	17 0 1 0 0 0 0 7	7 0 0 0 0 0	6 0 0 0 0 0	Conti 9 0 1 0 1 1	11 0 0 0 1 0 2	VATS 4 0 0 0 1 1	1 0 0 0 0 1 0		4 0 0 0 0 0	Precision	Recall 0.8962 0.9891 0.9200 0.7526 0.5882 0.7797 0.2593	F-score 0.7994 0.9927 0.9169 0.8391 0.6452 0.7863 0.3111	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis	285 1 8 4 5 0 5	3 273 0 0 0 0 0 0 0	9 0 138 0 0 0	19 0 1 73 0 0 2	11 0 0 0 30 9 1	8 0 1 0 4 46 0 0 0	17 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0	6 0 1 0 0 0 0	Conti 9 0 1 0 1 1 0	11 0 0 0 1 1 0 2 0 0	4 0 0 0 0 0 1 1 0 0	1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0	4 0 0 0 0 0 0	Precision	Recall 0.8962 0.9891 0.9200 0.7526 0.5882 0.7797 0.2593 0.3000	F-score 0.7994 0.9927 0.9169 0.8391 0.6452 0.7863 0.3111 0.2857	<u>Overall A</u> 82.62%
Statement System Greet Emotion ynQuestion vhQuestion Accept Emphasis Bye	285 1 8 4 5 0 5	3 273 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 138 0 0 0 0	19 0 1 73 0 0 2 1 0	11 0 0 0 30 9 1 0 0 0 0	8 0 1 0 4 46 0 0	17 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0	6 0 0 0 0 0 0 1 1 1 5	Continue 9 0 1 1 0 1 1 0 1 0 0 1	11 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VARIST 4 4 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 1 0 0	Cath  Color o  Color	4 0 0 0 0 0 0 0	Precision	Recall 0.8962 0.9891 0.9200 0.7526 0.5882 0.7797 0.2593 0.3000 0.6522	F-score 0.7994 0.9927 0.9169 0.8391 0.6452 0.7863 0.3111 0.2857 0.7317	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer	285 1 8 4 5 0 5 1 2	273 0 0 0 0 0 0	9 0 138 0 0 0 0 0	19 0 1 73 0 0 2 1 0	11 0 0 0 30 9 1 0 0	8 0 1 0 4 46 0 0 0	17 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 1 1 1 5	CORTION 9 0 1 1 0 1 1 0 0 6 6	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	VARIS 4 0 0 0 0 1 1 0 0 0	1 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0	Precision  0.7215  0.9964  0.9139  0.9481  0.7143  0.7931  0.3889  0.2727  0.8333  0.7500	Recall 0.8962 0.9891 0.9200 0.7526 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000	F-score 0.7994 0.9927 0.9169 0.8391 0.6452 0.7863 0.3111 0.2857 0.7317	
Statement System Greet Emotion ynQuestion vhQuestion Accept Emphasis Bye Continuer Reject	p PC 285 1 8 4 4 5 0 5 5 1 2 1	273 0 0 0 0 0 0 0	9 0 138 0 0 0 0 0	19 0 1 73 0 0 2 1 0 0	11 0 0 0 30 9 1 0 0 0	8 0 1 1 0 4 46 0 0 0 0 0 0 0 0	17 0 1 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 1 15 0	Continue 9 0 1 1 0 1 1 0 0 6 0 0	11 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0	Precision  0.7215  0.9964  0.9139  0.9481  0.7143  0.7931  0.3889  0.2727  0.8333  0.7500  0.5000	Recall 0.8962 0.9891 0.9200 0.7526 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579	F-score  0.7994 0.9927 0.9169 0.8391 0.6452 0.7863 0.3111 0.2857 0.7317 0.4286 0.2400	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	p PC 285 1 8 4 5 5 5 1 2 1 1 1	273 0 0 0 0 0 0 0 0	9 0 138 0 0 0 0 0	19 0 1 73 0 0 2 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	17 0 0 0 0 0 0 0 0 2	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 1 15 0 0	Continue 9 0 1 1 0 1 1 0 0 1 0 6 0 1 1	11 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7215  0.9964  0.9139  0.9481  0.7143  0.7931  0.3889  0.2727  0.8333  0.7500  0.5000  0.3333	Recall 0.8962 0.9891 0.9200 0.7526 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579 0.2500	F-score  0.7994 0.9927 0.9169 0.8391 0.6452 0.7863 0.3111 0.2857 0.7317 0.4286 0.2400 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer nAnswer	p PCC 285 1 8 4 4 5 0 5 5 1 1 2 1 1 0	0S tags 273 0 0 0 0 0 0 0 0 0 0	9 0 138 0 0 0 0 0 0	19 0 1 73 0 0 2 1 0 0 0 1	111 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 1 1 0 4 4 4 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	17 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CONTINUE OF THE PROPERTY OF TH	11 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 1 0 0 0 0 1 0 0 0 0 0 1 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 Office 4 Office 0 O	Precision  0.7215  0.9964  0.9139  0.9481  0.7143  0.7931  0.3889  0.2727  0.8333  0.7500  0.5000  0.3333  0.4000	Recall 0.8962 0.9891 0.9200 0.7526 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579 0.2500 0.4000	F-score  0.7994 0.9927 0.9169 0.8391 0.6452 0.7863 0.3111 0.2857 0.7317 0.4286 0.2400 0.2857 0.4000	
Statement System Greet Emotion ynQuestion vhQuestion Accept Emphasis Bye Continuer Reject yAnswer	p PC 285 1 8 4 5 5 5 1 2 1 1 1	273 0 0 0 0 0 0 0 0	9 0 138 0 0 0 0 0	19 0 1 73 0 0 2 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	17 0 0 0 0 0 0 0 0 2	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 1 15 0 0	Continue 9 0 1 1 0 1 1 0 0 1 0 6 0 1 1	11 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7215  0.9964  0.9139  0.9481  0.7143  0.7931  0.3889  0.2727  0.8333  0.7500  0.5000  0.3333	Recall 0.8962 0.9891 0.9200 0.7526 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579 0.2500	F-score  0.7994 0.9927 0.9169 0.8391 0.6452 0.7863 0.3111 0.2857 0.7317 0.4286 0.2400 0.2857	

Figure C.16: Experiment Run 30: Emoticons Assigned "UH" Tag

Using Actu	/		Gre Gre	et line	tion ynd	estion	Question	St. St.	Empl	lasis Conti	Reject Property	, VARSY	n Art	Clarify	Othe	Precision	Recall	F-score	Overall Accuracy
Statement	263	4	o	20	8	7	17	5	9	9	12	2	4	4	0	0.7225	0.8946	0.7994	83.72%
System		98	0	0	0	0		0	0	0	0	0	0	0	0	0.7223	0.8940	0.7994	03.7270
Greet	8		114	0	0	0		0	2	2	1	0	0	0	1	0.8906	0.9421	0.9157	
Emotion	4	0	4	84	0	0		0	0	0	0	0	0	0	0	0.9130	0.7778	0.8400	
ynQuestion	6	0	0	0	39	4	0	0	0	1	0	1	0	0	0	0.7647	0.7647	0.7647	
whQuestion	1	0	0	0	1	52	0	0	0	0	0	0	0	0	0	0.9630	0.8254	0.8889	
Accept	7	0	0	0	1	0	8	0	1	0	2	3	0	0	0	0.3636	0.2963	0.3265	
Bye	0	0	1	0	0	0	0	14	0	0	0	0	0	0	0	0.9333	0.7368	0.8235	
Emphasis	0	0	2	4	1	0	0	0	6	0	0	1	0	0	0	0.4286	0.3000	0.3529	
Continuer	0	0	0	0	0	0		0	1	7	0	1	0	0	0	0.7000	0.3684	0.4828	
Reject	1	0	0	0	1	0		0	1	0	3	0	3	0	0	0.3333	0.1667	0.2222	
yAnswer	1	0	0	0	0	0		0	0	0	0	3	0	0	0	0.6000	0.2727	0.3750	
nAnswer	0	0	0	0	0	0	-	0	0	0	0	0	3	0	0	1.0000	0.3000	0.4615	
Clarify	1	0	0	0	0	0		0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.0000	0.5000	0.6667	
Other Using Chea	ap POS	tags	<u> </u>														0.5000	0.6667	
Using Chea	ap POS	tags	Str. Cis	et tim	Jiton yn Qi	le stior	Question	NA PAR	Empl	asis Coni	ruet Reiec	VARSI	yet name	Swet Clarify	Other	Precision	Recall	F-score	Overall A
Using Chea	ap POS	tags	Gie O	et tenic 21	Jitan Jinai	estion with	Olesion Acce	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Emil 11	Rasis Coni	nuet Reiect	yAnsi 2	ner ner	Swet Clairs	Other 1	Precision 0.7310	Recall 0.9150	<u>F-score</u> 0.8127	
Using Chea	ap POS  5881217  269  0 2	tags	o o	Erne 21 1	Jilon Vindi	estion 9	Ouesitor Pcce 15	5 0	#### 11 0	asis Conti	Reigi 10	VARSI 2 0	rent 4	Swei Caiff	Other of the other o	Precision 0.7310 0.9967	Recall 0.9150 0.9901	F-score 0.8127 0.9934	
Using Chea	ap POS  cyden  269  0 2 3	tags	0 0 114		Stion Vinal	9 0	Question Acce 15 0	\$ \$ 0 0		Rasis Continues of the	Reigi Qeigi 10 0	2 0 0	rpri	Swet Clairs	Office 1 0 0	Precision 0.7310 0.9967 0.9421	Recall 0.9150 0.9901 0.9421	F-score 0.8127 0.9934 0.9421	
Using Chean Statement System Greet Emotion	269 0 2 3	tags 3 99 0	0 0 114 4	21 1 0 82	individual vindividual vindivi	gestion 9	Ouesitor  15  0  0  0	5 0 0		8 0 2	To 0 1 0	2 0 0	A O O O	Just deliver of the control of the c	1 0 0 0 0	Precision 0.7310 0.9967 0.9421 0.9011	Recall 0.9150 0.9901 0.9421 0.7593	F-score 0.8127 0.9934 0.9421 0.8241	
Statement System Greet Emotion ynQuestion	269 0 2 3 3	tags 57 3 99 0 0	0 0 0 114 4	21 1 0 82 0	7 0 0 0 38	9 0 1 0 3	Ouesian Dues Color Due	5 0 0 0	######################################	8 0 2 0 2	To the state of th	2 0 0 0	TRAIT 4 0 0 0 0 0 0	Super Craft Super Control of Cont	0 Office	0.7310 0.9967 0.9421 0.9011 0.7600	Recall 0.9150 0.9901 0.9421 0.7593 0.7451	F-score 0.8127 0.9934 0.9421 0.8241 0.7525	
Statement System Greet Emotion ynQuestion whQuestion	ap POS	tags  2	0 0 0 114 4 0	21 1 0 82 0	7 0 0 0 38 4	9 0 1 0 3 <b>50</b>	15 0 0 0 0 0 0	5 0 0 0	######################################	8 0 2 0 2	10 0 0 0	1	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Osin Osin Osin Osin Osin Osin Osin Osin	1 0 0 0 0	0.7310 0.9967 0.9421 0.9011 0.7600 0.9091	Recall 0.9150 0.9901 0.9421 0.7593 0.7451 0.7937	F-score 0.8127 0.9934 0.9421 0.8241 0.7525 0.8475	
Statement System Greet Emotion ynQuestion whQuestion Accept	ap POS  269  0 2  3 3  6 1  5	tags  5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0 0 0 114 4 0 0	21 1 0 82 0 0	7 0 0 0 38 4	9 0 1 0 3 <b>50</b>	15 0 0 0 0 0	5 0 0 0 0	######################################	8 0 2 0 2 0	10 0 0 0 0 0	VARS 2 0 0 0 0 1 0 0 3	4 0 0 0 0 0 0 0 0 0	3 0 0 0 0	1 0 0 0 0 0	0.7310 0.9967 0.9421 0.9011 0.7600 0.9091 0.4783	Recall 0.9150 0.9901 0.9421 0.7593 0.7451 0.7937 0.4074	F-score 0.8127 0.9934 0.9421 0.8241 0.7525 0.8475 0.4400	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	ap POS  269  0 2  3 3  6 1  5 1	tags  57  8  99  0  0  0  0	0 0 0 114 4 0 0	21 1 0 82 0 0 0	7 0 0 0 38 4 1	9 0 1 0 3 <b>50</b> 0	15 0 0 0 0 0 11 0	5 0 0 0 0 0	######################################	8 0 2 0 2 0 0	10 0 1 0 0 0 0 0 0	2 0 0 0 1 0 3	0 0 0 0 0 0	3 0 0 0 0 0	1 0 0 0 0 0 0	0.7310 0.9967 0.9421 0.9011 0.7600 0.9091 0.4783 0.8750	Recall 0.9150 0.9901 0.9421 0.7593 0.7451 0.7937 0.4074 0.7368	F-score  0.8127 0.9934 0.9421 0.8241 0.7525 0.8475 0.4400 0.8000	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	ap POS  269  0 2  3 3  6 1  5 1	tags  1	0 0 114 4 0 0 0	21 1 0 82 0 0 0 0	7 0 0 0 0 38 4 1 0	9 0 1 0 0 0 0	15 0 0 0 0 0 11 0 0 0	5 0 0 0 0 0 0 0	11 0 0 2 0 0 1 0 5	8 0 2 0 0 0 0	10 0 1 0 0 0 0 0 0	2 0 0 0 0 1 0 3 0	1	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7310 0.9967 0.9421 0.9011 0.7600 0.9091 0.4783 0.8750 0.4167	Recall 0.9150 0.9901 0.9421 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500	F-score  0.8127 0.9934 0.9421 0.8241 0.7525 0.8475 0.4400 0.8000 0.3125	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	ap POS  269  0 2  3 3  6 1  5 1  0 1	3 3 99 0 0 0 0 0	0 0 0 1114 4 0 0 0 0	21 1 0 82 0 0 0 0 4	7 0 0 0 38 4 1 0	9 0 1 0 3 50 0 0	15 0 0 0 0 0 11 0 0 1 1	5 0 0 0 0 0 0 0 0	11 0 0 0 2 0 0 1 0 5	8 0 2 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0	2 0 0 0 1 0 3 0 1	1, Art 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7310 0.9967 0.9421 0.9011 0.7600 0.9091 0.4783 0.8750 0.4167 0.7000	Recall 0.9150 0.9901 0.9421 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684	F-score  0.8127 0.9934 0.9421 0.8241 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828	<u>Overall A</u> 84.28%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap POS  269  0 2  3 3  6 1  5 1  0 1 1	3 3 99 0 0 0 0 0	0 0 0 114 4 0 0 0 0	21 1 0 82 0 0 0 0 0	7 0 0 0 38 4 1 0 0	9 0 1 0 0 0 0 0 0 0	15 0 0 0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 14 0	11 0 0 2 0 0 1 0 5	8 0 2 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 1 0 3 0 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.9150 0.9901 0.9421 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684 0.2222	F-score  0.8127 0.9934 0.9421 0.8241 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap POS  269  0 2  3 3  6 1  5 1  0 1  1 2	3 99 0 0 0 0 0 0	0 0 0 114 4 0 0 0 0 0	21 1 0 82 0 0 0 0 0 0	7 0 0 0 38 4 1 0 0	9 0 1 0 3 50 0 0 0 0	15 0 0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0	11 0 0 2 0 0 1 0 5 0 1 0 0 1 0 0	8 0 0 2 0 0 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 1 0 3 0 1 1	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7310 0.9967 0.9421 0.9011 0.7600 0.9091 0.4783 0.8750 0.4167 0.7000 0.4000 0.6000	Recall 0.9150 0.9901 0.9421 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684 0.2222 0.2727	F-score  0.8127 0.9934 0.9421 0.8241 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828 0.2857 0.3750	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap POS  269  0 2  3 3  6 1  5 1  0 1  1 2  1	3 3 99 0 0 0 0 0 0	0 0 0 114 4 0 0 0 0 1 2 0 0 0	21 1 0 82 0 0 0 0 0 0 0	7 0 0 0 38 4 1 0 0 0	9 0 1 0 3 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 2 0 0 1 0 5 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 1 0 3 0 1 1 0		3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.9150 0.9901 0.9421 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684 0.2222 0.2727 0.3000	F-score  0.8127 0.9934 0.9421 0.8241 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828 0.2857 0.3750 0.4000	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap POS  269  0 2  3 3  6 1  5 1  0 1  1 2	3 99 0 0 0 0 0 0	0 0 0 114 4 0 0 0 0 0	21 1 0 82 0 0 0 0 0 0	7 0 0 0 38 4 1 0 0	9 0 1 0 3 50 0 0 0 0	15 0 0 0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0	11 0 0 2 0 0 1 0 5 0 1 0 0 1 0 0	8 0 0 2 0 0 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 1 0 3 0 1 1	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7310 0.9967 0.9421 0.9011 0.7600 0.9091 0.4783 0.8750 0.4167 0.7000 0.4000 0.6000	Recall 0.9150 0.9901 0.9421 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684 0.2222 0.2727	F-score  0.8127 0.9934 0.9421 0.8241 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828 0.2857 0.3750	

Figure C.17: Experiment Run 35: Emoticons Assigned "UH" Tag

Using Actu		Jernent Sys	$\overline{}$	zi Emdi	Jon Villa	lestion who	Mestion	21t / 84°	Emp	Conti	Reign	A Ansi	Wei NATEN	wei Other	Clair	Precision	Recall	F-score	Overall Accuracy
Statement	279	3	7	10	15	3	10	4	8	7	16	4	1	0	6	0.7480	0.8532	0.7971	83.66%
System	3	264	2	0	0	0	0	0	0	0	0	0	0	0	0	0.9814	0.9814	0.9814	
Greet	16	0	131	1	0	0	0	0	0	0	1	0	0	0	0	0.8792	0.9034	0.8912	
Emotion	6	0	1	99	0	0	0	0	1	0	0	0	0	1	1	0.9083	0.8839	0.8959	
ynQuestion	4	2	1	0	44	1	0	0	1	0	0	0	0	0	0	0.8302	0.7097	0.7652	
whQuestion	1	0	1	0	2	44	0	0	1	0	0	1	0	0	0	0.8800	0.8980	0.8889	
Accept	6	0	0	0	1	0	13	0	1	1	1	2	0	0	0	0.5200	0.5200	0.5200	
Bye	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	1.0000	0.7778	0.8750	
Emphasis	3	0	2	2	0	0	0	0	6	0	0	0	0	0	0	0.4615	0.3158	0.3750	
Continuer	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0.6667	0.3077	0.4211	
Reject	3	0	0	0	0	0	0	0	1	0	2	0	1	0	0	0.2857	0.0952	0.1429	
yAnswer	1	0	0	0	0	1	2	0	0	0	0	5	0	0	0	0.5556	0.4167	0.4762	
nAnswer	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0.0000	0.0000	undef	
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1.0000	0.5000	0.6667	
Clarify Using Chea				0	0	0	O Joseph	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
, , , , , , , , , , , , , , , , , , ,	ap PC	S tags	<u> </u>																Overall A
Using Chea	ap PC	OS tags	S. Gred	ž knoj	ion mai	Destion with	rue stion	ni /	Emp	lasis Coni	ruet Reie	J. VALIS	net ransu	yet Other	Clair	Precision	Recall	F-score	-
Using Chea	ap PC خ <sup>رد</sup> <b>276</b>	OS tags	s sen Ge	ži kindi 11	ion viol	gestion who	Liestion PCC		Ernal 11	iasis Coni	ruet Reief	J. VANS	rans <sup>1</sup>	other o	Olati	Precision 0.7360	<b>Recall</b> 0.8440	<u>F-score</u> 0.7863	-
Using Chea	ap PC දුරු <b>276</b>	OS tags	S. Green Green	Enot 11 1	und vindi	estor un 4 0	Luesitor PCC 10 0	4 0	#### 11 0	Resis Coni	Reign Reign	Ansi Vansi 5	TATES O	Other O	Otali 7 0	Precision 0.7360 0.9779	Recall 0.8440 0.9851	F-score 0.7863 0.9815	-
Using Chea Statement System Greet	ap PC ලේ <b>276</b> 2	OS tags Leftert  2  265	6 3 131	11 1 0	16 0 0	d 0 0	presion 10 0 1	4 0 0		Continue 8	Description of the second of t	5 0 0	ransi 0 0	Office of the of	7 0 0	Precision 0.7360 0.9779 0.8733	Recall 0.8440 0.9851 0.9034	F-score 0.7863 0.9815 0.8881	-
Statement System Greet Emotion	جر من	0S tags    Stags	6 3 131	11 1 0 99	16 0 0	esion 4 0 0	ACC 10 0 1 0	4 0 0 0	######################################	Resis Continues of the	75 0 1 0	5 0 0 0	net net of the state of the sta	Otter Otter	7 0 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8839	F-score 0.7863 0.9815 0.8881 0.9124	-
Statement System Greet Emotion ynQuestion	276 276 2 17 3	2 265 0 0 1	6 3 131 1 2	11 1 0 99	16 0 0 0 41	gestion 4 0 0 0 2	pcc 10 0 1 0 0 0	4 0 0 0 0 0 0	### Employed	Continue 8 0 0 0 0 0	15 0 1 0	7 ANS	CALED O O O O	Office Of	7 0 0 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8839 0.6613	F-score 0.7863 0.9815 0.8881 0.9124 0.6949	-
Statement System Greet Emotion ynQuestion whQuestion	276 276 2 17 3 9	2 265 0 0 1 1	6 3 131 1 2	11 1 0 99 0 0 0	16 0 0 41 4	0 0 0 2 42	Lieston 10 0 0 0 0	4 0 0 0 0	######################################	8 0 0 0	15 0 1 0 0	5 0 0 0 0 0 1	0 0 0 0 0	Office Office O O O O	7 0 0 0 0 0 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8839 0.6613 0.8571	F-score 0.7863 0.9815 0.8881 0.9124 0.6949 0.8660	
Statement System Greet Emotion ynQuestion whQuestion Accept	276 276 2 17 3 9	2 265 0 0 1 1 0	6 3 131 1 2 0 0	11 1 0 99 0 0 0 0 0	16 0 0 0 41 4	4 0 0 0 2 42 0	10 0 1 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1	4 0 0 0 0 0	######################################	8 0 0 0 0 0	15 0 0 0 0	VANS 5 0 0 0 1 2	TARGET TA	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8839 0.6613 0.8571 0.4800	F-score 0.7863 0.9815 0.8881 0.9124 0.6949 0.8660 0.4528	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	276 276 2 17 3 9 0	2 265 0 0 1 1 0 0	6 3 131 1 2 0 0 0 0	11 1 0 99 0 0 0	16 0 0 0 41 4 1	4 0 0 0 2 42 0 0	10 0 0 0 12 1	4 0 0 0 0 0 0	######################################	8 0 0 0 0 0	15 0 0 0 0 0	5 0 0 0 0 1 2	0 0 0 0 0 0	Ottlet 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8839 0.6613 0.8571 0.4800 0.7778	F-score 0.7863 0.9815 0.8881 0.9124 0.6949 0.8660 0.4528 0.8235	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	276 277 3 9 0 10	2 265 0 0 0 1 1 0 0 0 0	6 3 131 1 2 0 0 0	11 1 1 0 99 0 0 0 0	16 0 0 0 41 4 1 0	4 0 0 0 2 <b>42</b> 0 0 0 0	10 0 0 0 12 1 0 0	4 0 0 0 0 0 0 0	11 0 0 1 1 0 1 0 5	8 0 0 0 0 0 0	15 0 0 0 0 0 0 0	5 0 0 0 0 1 2 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8839 0.6613 0.8571 0.4800 0.7778 0.2632	F-score 0.7863 0.9815 0.8881 0.9124 0.6949 0.8660 0.4528 0.8235 0.3448	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	276 277 3 9 0 10 1 2	2 265 0 0 1 1 0 0 0 0 0 0	6 3 131 1 2 0 0 0 2	11 1 0 99 0 0 0 0	16 0 0 0 41 4 1 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 1 1 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 1 0 5	8 0 0 0 0 0 0 0 4	15 0 0 0 0 0 0 0	5 0 0 0 0 0 1 2 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0		7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8839 0.6613 0.8571 0.4800 0.7778 0.2632 0.3077	F-score  0.7863 0.9815 0.8881 0.9124 0.6949 0.8660 0.4528 0.8235 0.3448 0.4211	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	276 276 2 17 3 9 0 10 1 2 2	2 265 0 0 1 1 0 0 0 0 0 0 0	6 3 131 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 1 0 99 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 0 0 41 4 1 0 0	4 0 0 0 2 42 0 0 0	10 0 0 0 0 0 12 1 0 0	4 0 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0	8 0 0 0 0 0 0 0 0 0 4	15 0 1 0 0 0 0 0 0 0 0 0	5 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8839 0.6613 0.8571 0.4800 0.7778 0.2632 0.3077 0.1429	F-score  0.7863 0.9815 0.8881 0.9124 0.6949 0.8660 0.4528 0.8235 0.3448 0.4211 0.2308	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	2766 2 2766 2 177 3 9 0 10 1 2 2 1 1	2 265 0 0 1 1 0 0 0 0 0 0 0 0 0	6 3 131 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 1 0 99 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 0 0 41 4 1 0 0 0	4 4 0 0 0 0 0 0 0 0 0 0 0 1	10 0 0 0 12 1 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 1 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 1 2 0 0 0 0 0 4	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7360 0.9779 0.8733 0.9429 0.7321 0.8750 0.4286 0.8750 0.5000 0.6667 0.6000 0.5714	Recall	F-score  0.7863 0.9815 0.8881 0.9124 0.6949 0.8660 0.4528 0.8235 0.3448 0.4211 0.2308 0.4211	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer nAnswer	9 0 10 1 2 2 1 1 1 1 1	2 265 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 3 131 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 1 0 99 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 0 0 41 4 1 0 0 0 0	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 0 0 0 12 1 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 1 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 1 2 0 0 0 0 0 0 4 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall	F-score  0.7863 0.9815 0.8881 0.9124 0.6949 0.8660 0.4528 0.8235 0.3448 0.4211 0.2308 0.4211 0.4000	<u>Overall A</u> 82.92%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	2766 2 2766 2 177 3 9 0 10 1 2 2 1 1	2 265 0 0 1 1 0 0 0 0 0 0 0 0 0	6 3 131 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 1 0 99 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 0 0 41 4 1 0 0 0	4 4 0 0 0 0 0 0 0 0 0 0 0 1	10 0 0 0 12 1 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 1 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 1 2 0 0 0 0 0 4	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7360 0.9779 0.8733 0.9429 0.7321 0.8750 0.4286 0.8750 0.5000 0.6667 0.6000 0.5714	Recall	F-score  0.7863 0.9815 0.8881 0.9124 0.6949 0.8660 0.4528 0.8235 0.3448 0.4211 0.2308 0.4211	-

Figure C.18: Experiment Run 40: Emoticons Assigned "UH" Tag

Using Actu	c Sign	Jernent Sys	$\overline{}$	zi findi	Jon Vilor	estion who	Mestion	10 Age /	Empl	Cont	Acile Acile	St ANS	net nanst	avet Clarit	y Othe	Precision	Recall	F-score	Overall Accuracy
Statement	285	4	7	19	8	6	5	4	7	11	11	3	2	1	0	0.7641	0.8559	0.8074	83.77%
System	4	270	0	1	0	0	0	0	0	0	0	0	0	0	0	0.9818	0.9854	0.9836	
Greet	11	0	109	2	0	1	0	0	0	1	0	0	0	0	0	0.8790	0.8790	0.8790	
Emotion	4	0	2	94	0	0	0	0	1	0	0	0	0	0	0	0.9307	0.7899	0.8545	
ynQuestion	10	0	1	0	35	2	0	0	0	0	0	0	0	1	0	0.7143	0.7609	0.7368	
whQuestion	0	0	3	0	2	48	0	0	0	1	0	0	0	0	0	0.8889	0.8421	0.8649	
Accept	8	0	0	0	0	0	14	0	0	0	0	2	1	0	0	0.5600	0.6087	0.5833	
Bye	1	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0.9412	0.7273	0.8205	
Emphasis	2	0	2	2	0	0	0	0	8	1	1	0	0	0	0	0.5000	0.4706	0.4848	
Continuer	4	0	0	0	1	0	1	0	0	4	0	0	0	0	0	0.4000	0.2105	0.2759	
Reject	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0.3333	0.0714	0.1176	
yAnswer	0	0	0	1	0	0	3	0	0	1	0	3	0	0	0	0.3750	0.3750	0.3750	
nAnswer	1	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0.7500	0.6667	0.7059	
Clarify	2	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0.2500	0.3333	0.2857	
0.1																			
Other Using Chea				0	0	0	O (iof	1	0	0	0	0	0	0	4	0.8000	1.0000	0.8889	
	ap PC	S tags	3																Overall A
Using Chea	ap PC		s Serr Gree	ž Endi	Jon Andi	Destion Whi	lue stion	ni ke	Emp	lasis Con	nuet peie	St. VALIS	net nansi	net Clarif	A Othe	Precision	Recall	F-score	Overall A
Using Chea	ap PC	OS tags	S GREGIE	ži kroj 20	ynd'	sestion who	Juestion ACC		Emp 8	Rasis Conti	Reight Reight	ot yansi	net ransi	met Clarif	H Othe	Precision 0.7526	<b>Recall</b> 0.8769	F-score 0.8100	
Using Chea	ap PC	OS tags	S Green Green	zi kindi 20 0	yndi 9 0	o stion	Luesion Acc	6 0	Empl 8	Coni 10	Reight Reight	A O	naret ransi	anet Clarif	Office 2	Precision 0.7526 0.9926	Recall 0.8769 0.9854	F-score 0.8100 0.9890	
Using Chea	عبر المجاورة	OS tags  Leftert  4  270	9 0 109	20 20 0 2	yrai 9 0 0	sesion of the se	Duestion Acco	6 0	Emil 8 0 0	Control 10 0 1	Reference of the control of the cont	VANS	rarsi	Call Call	9 Other 2 0 0	Precision 0.7526 0.9926 0.9008	Recall 0.8769 0.9854 0.8790	F-score 0.8100 0.9890 0.8898	
Using Chean Statement System Greet Emotion	292 2 8 3	0S tags  270  0  0	9 0 109	20 0 2 91	yrdi 9 0 0	Besion 3 0 1 0	Duesion 5 0 0 0	6 0 0			Reight Re	4 0 0 0	narei	Calf	9 Othe 2 0 0 0 0	Precision	Recall 0.8769 0.9854 0.8790 0.7647	F-score 0.8100 0.9890 0.8898 0.8505	
Statement System Greet Emotion ynQuestion	292 2 8 3	OS tags  OS tags  OS tags  OS tags  OS tags	9 0 109	20 0 2 91	9 0 0 0	3 0 1 0	Duesion S	6 0 0 0	######################################	10 0 1 0	Reight Re	4 0 0 0 0 0	ransi	Carly Carly O	Other 2 0 0 0 0 0 0	Precision	Recall 0.8769 0.9854 0.8790 0.7647 0.6304	F-score 0.8100 0.9890 0.8898 0.8505 0.6444	
Statement System Greet Emotion ynQuestion whQuestion	292 2 8 3 11	0S tags  270  0  0  0  0	9 0 109 1 1	20 0 2 91 0 0 0	9 0 0 0 29	3 0 1 0 1 52	Lieston 5 0 0 0	6 0 0 0 0 0 0	######################################	10 0 1 0 1 1	12 0 0 0 0 0 0	VANS 4 0 0 0 0 0 0	nuel ransi	0 0 0 1 0	9 Other 2 O O O O O O	Precision	Recall 0.8769 0.9854 0.8790 0.7647 0.6304 0.9123	F-score 0.8100 0.9890 0.8898 0.8505 0.6444 0.8595	
Statement System Greet Emotion ynQuestion whQuestion Accept	292 2 8 3 11 8	0S tags 4 270 0 0 0 0	9 0 109 1 1 2	20 0 2 2 91 0 0	9 0 0 0 29 8	3 0 1 0 1 52	112 sign   122 sign   123 sign   124 sign	6 0 0 0 0	######################################	10 0 1 0 1 1 0	12 0 0 0 0 0	VANS 4 0 0 0 0 0 2	7.A.T.S. 7.A	0 0 0 1 0	2 0 0 0 0 0	Precision	Recall 0.8769 0.9854 0.8790 0.7647 0.6304 0.9123 0.6087	F-score  0.8100 0.9890 0.8898 0.8505 0.6444 0.8595 0.5833	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	292 2 8 3 11 1 8	9S tags 9	9 0 109 1 1 2 0	20 0 0 2 91 0 0	9 0 0 0 29 8 0	3 0 1 0 1 52 0	5 0 0 0 0 14	6 0 0 0 0 0	######################################	10 0 1 0 1 1 0 0	12 0 0 0 0 0	4 0 0 0 0 0 0 0	7	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8769 0.9854 0.8790 0.7647 0.6304 0.9123 0.6087 0.7273	F-score  0.8100 0.9890 0.8898 0.8505 0.6444 0.8595 0.5833 0.8421	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	292 292 2 8 3 11 1 8 0	9S tags  270  0  0  0  0  0  0  0	9 0 109 1 1 2 0 0	20 0 2 91 0 0 0	9 0 0 0 29 8 0 0	3 0 1 0 1 52 0 0	5 0 0 0 0 0 14 0	6 0 0 0 0 0 0 0	######################################	10 0 1 1 0 0 1 1 0 0	12 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8769 0.9854 0.8790 0.7647 0.6304 0.9123 0.6087 0.7273 0.4118	F-score  0.8100 0.9890 0.8898 0.8505 0.6444 0.8595 0.5833 0.8421 0.4242	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	292 2 2 8 3 11 1 8 0 2 4	0S tags 4 270 0 0 0 0 0 0 0	9 0 109 1 1 2 0 0	20 0 2 91 0 0 0	9 0 0 0 29 8 0 0	3 0 1 0 1 52 0 0	5 0 0 0 0 14 0 0	6 0 0 0 0 0 0 0 0	######################################	10 0 1 1 0 0 1 1 0 0 1 4	12 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0	Precision	Recall 0.8769 0.9854 0.8790 0.7647 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105	F-score  0.8100 0.9890 0.8898 0.8505 0.6444 0.8595 0.5833 0.8421 0.4242 0.2759	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	292 292 2 8 3 3 11 1 8 0 0 2 4 4 1	0S tags 4 270 0 0 0 0 0 0 0 0 0	9 0 109 1 1 2 0 0	20 0 2 91 0 0 0 0 0 0	9 0 0 0 29 8 0 0 0	3 0 1 0 1 52 0 0 0	5 0 0 0 0 0 14 0 0	6 0 0 0 0 0 0 0 0 0 0	######################################	10 0 1 1 0 0 1 1 0 0 1 4	12 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8769 0.9854 0.8790 0.7647 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105 0.0000	F-score  0.8100 0.9890 0.8898 0.8505 0.6444 0.8595 0.5833 0.8421 0.4242 0.2759 undef	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	292 292 8 3 11 1 8 0 2 4 1	0S tags 4 270 0 0 0 0 0 0 0 0 0 0 0 0	9 0 109 1 1 2 0 0 0	20 0 2 91 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 1 52 0 0 0 0 0	5 0 0 0 0 0 14 0 0 0 3	6 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 7 0 1 0	10 0 1 0 1 1 0 0 1 4 0	12 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0	0 Office	Precision  0.7526  0.9926  0.9008  0.9579  0.6591  0.8125  0.5600  1.0000  0.4375  0.4000  0.0000  0.3333	Recall 0.8769 0.9854 0.8790 0.7647 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105 0.0000 0.2500	F-score  0.8100 0.9890 0.8898 0.8505 0.6444 0.8595 0.5833 0.8421 0.4242 0.2759 undef 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer nAnswer	292 292 2 8 8 3 11 1 2 4 4 1 0 0	0S tags 4 270 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 109 1 1 2 0 0 0	20 0 2 91 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 1 52 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 Office	Precision  0.7526  0.9926  0.9008  0.9579  0.6591  0.8125  0.5600  1.0000  0.4375  0.4000  0.0000  0.3333  0.7500	Recall 0.8769 0.9854 0.8790 0.7647 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105 0.0000 0.2500 0.6667	F-score  0.8100 0.9890 0.8898 0.8505 0.6444 0.8595 0.5833 0.8421 0.4242 0.2759 undef 0.2857 0.7059	<u>Overall A</u> 83.40%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	292 292 8 3 11 1 8 0 2 4 1	0S tags 4 270 0 0 0 0 0 0 0 0 0 0 0 0	9 0 109 1 1 2 0 0 0	20 0 2 91 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 1 52 0 0 0 0 0	5 0 0 0 0 0 14 0 0 0 3	6 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 7 0 1 0	10 0 1 0 1 1 0 0 1 4 0	12 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0	0 Office	Precision  0.7526  0.9926  0.9008  0.9579  0.6591  0.8125  0.5600  1.0000  0.4375  0.4000  0.0000  0.3333	Recall 0.8769 0.9854 0.8790 0.7647 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105 0.0000 0.2500	F-score  0.8100 0.9890 0.8898 0.8505 0.6444 0.8595 0.5833 0.8421 0.4242 0.2759 undef 0.2857	

Figure C.19: Experiment Run 45: Emoticons Assigned "UH" Tag

Using Actu	al POS ta		set fini	dion ynd	restion	Question	/ k*/	Emp	lasis (i	Reign	J. VANS	net name	Clarify Clarify	Oth	<u> </u>			Overall
,	/ 5 <sup>x0</sup> / 6	8/6	/4	144	/m	/ PCO	846	\4M)	/ W)	/ <sup>QEV</sup> /	/h	UN	/ C/0/	\Q_{(i)}	Precision	Recall	F-score	Accurac
Statement		1 7	13	11	3	6	7	9	11	7	4	4	1	2	0.7493	0.8721	0.8061	83.09%
System	0 238	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0000	0.9835	0.9917	
Greet	10 (	131	0	0	0		0	0	1	0	1	0	0	1	0.9097	0.9161	0.9129	
Emotion	-	) 1	92	0	0		0	1	0	0	0	1	0	0	0.9293	0.8288	0.8762	
ynQuestion		) 1	0	29	6	-	0	1	0	0	0	1	1	0	0.7073	0.6744	0.6905	
whQuestion		) 2	0	3	57	0	0	0	0	0	0	0	0	0	0.9048	0.8382	0.8702	
Accept	-	0		0	0	-	0	0	0	2	4	0	0	0	0.2500	0.3333	0.2857	
Bye	-	0		0	0		10	0	0	0	0	0	0	0	0.9091	0.5556	0.6897	
Emphasis		) 1	1	0	0		0	9	0	0	0	0	0	0	0.6923	0.4286	0.5294	
Continuer		0		0	0		0	0	5	0	0	0	0	0	0.5000	0.2941	0.3704	
Reject		0	0	0	1	0	1	0	0	3	0	2	0	0	0.2308	0.2143	0.2222	
yAnswer	0 (	0	0	0	1	2	0	1	0	0	3	0	0	0	0.4286	0.2500	0.3158	
nAnswer	0 (	0	0	0	0	0	0	0	0	2	0	3	0	0	0.6000	0.2727	0.3750	
Clarify	1 (	0	0	0	0	0	0	0	0	0	0	0	1	0	0.5000	0.3333	0.4000	
,																		
Other	2 (	0		0	0		0	0	0	0	0	0	0	3	0.3750	0.5000	0.4286	
	2 (	-1 -		<u> </u>			٠,						-					Overall A
Other	2 (	Stem Gr	Set Little	Jilon Viol	lestion with	Question Pcce	NA PAR	Lind	lasis Con	Reie	J. VARSI	yet name	Swei Clair	A Oth	Precision	Recall	F-score	
Other	2 ( Statement 269 !	Stern Gr	28 <sup>t</sup> 41 <sup>th</sup>	Jilon Vino	Jestion win	Quesion Acce	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Empl 11	Rasis Conti	Reject 8	J. VANS	ner ner	Carry 1	Office 3	<u>Precision</u> 0.7390	Recall 0.8820	<u>F-score</u> 0.8042	
Other  Statement System	2 ( cjaleneric 269 ! 0 23:	Stern Gr	Set Little	Jilon Viol	Jestion with	Quesitor Acce 5	9 0	Empl 11 0	Continue 8	Reign Reign	VANS	rent 4	Cair Cair	A Oth	Precision 0.7390 0.9958	Recall 0.8820 0.9793	F-score 0.8042 0.9875	
Other  Statement System Greet	2 (defined as 2	5 7 0 131	16 0 0	Stion Vinds	desilor um 2 0 1	Questor Acce 5 0	9 0	11 0 0	8 1	Reight Reight	1 Ansi 4 0 0 0	rpri	Clair O	3 0 0	Precision 0.7390 0.9958 0.9357	Recall 0.8820 0.9793 0.9161	F-score 0.8042 0.9875 0.9258	
Other  Statement System Greet Emotion	2 (gaterner) (gaterner	5 7 0 131 0 1	28 <sup>t</sup> 41 <sup>th</sup> 16	12 0 0 0	Jestion with	Ouesion 5 0 0 1	9 0	11 0 0	8 1 1	Reign Reign	VANS		Ozaiti 1 0 0	Oth Oth	Precision 0.7390 0.9958 0.9357 0.9375	Recall 0.8820 0.9793 0.9161 0.8108	F-score 0.8042 0.9875 0.9258 0.8696	
Statement System Greet Emotion ynQuestion	2 (gaterner) 269 (gaterner) 7 (gaterner) 2 (gaterner) 2 (gaterner) 2 (gaterner) 4 (gaterner)	5 7 0 131 0 1 1 0 2	16 0 0 90	12 0 0 0 25	Lestion 2 0 1 0 4	Outerior 5 0 0 0 1 0	9 0 0 0	11 0 0 1 1 1	8 1 1 0	Ree o	4 0 0 0 0 0	4 0 0 1 0	Danker Calif	3 0 0 0	Precision 0.7390 0.9958 0.9357 0.9375 0.6579	Recall 0.8820 0.9793 0.9161 0.8108 0.5814	F-score 0.8042 0.9875 0.9258 0.8696 0.6173	
Statement System Greet Emotion ynQuestion whQuestion	2 (0 269 9 0 23 7 (0 4 (0 1 (0	5 7 0 131 0 1	16 0 0 90	12 0 0 0	Jestion 2 0 1	Quesion 5 0 0 1 0 0	9 0 0	11 0 0	8 1 1	Reference of the control of the cont	VARS		Ozaiti 1 0 0	3 0 0	Precision 0.7390 0.9958 0.9357 0.9375	Recall 0.8820 0.9793 0.9161 0.8108	F-score 0.8042 0.9875 0.9258 0.8696	
Statement System Greet Emotion ynQuestion whQuestion Accept	2 (c)	5 7 0 131 0 131 0 2 0 1	16 0 0 90 0 0	12 0 0 0 25 6	2 0 1 0 4 58	0 0 0 0 7	9 0 0 0	######################################	8 1 1 0 0	Ree o	4 0 0 0 0 0	1 0 0 0	Odiffication of the control of the c	3 0 0 0 0	Precision 0.7390 0.9958 0.9357 0.9375 0.6579 0.8788	Recall 0.8820 0.9793 0.9161 0.8108 0.5814 0.8529	F-score 0.8042 0.9875 0.9258 0.8696 0.6173 0.8657	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	2 (c)	5 7 0 131 0 131 0 2 0 1	16 0 0 90 0 0	12 0 0 0 0 25 6	2 0 1 0 4 58	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0	11 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 1 1 0 0 0	8 0 0 0 0 0 0 2	VATS VATS VATS VATS VATS VATS VATS VATS	4 0 0 0 1 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0	Precision	Recall 0.8820 0.9793 0.9161 0.8108 0.5814 0.8529 0.4667	F-score  0.8042 0.9875 0.9258 0.8696 0.6173 0.8657 0.3590	
Statement System Greet Emotion ynQuestion whQuestion Accept	2 (c)	5 7 0 131 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 0 90 0 0 0 1	12 0 0 0 0 25 6 0	2 0 1 0 4 58 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0	######################################	8 1 1 0 0 0 0	8 0 0 0 0 0 0	VARIO 0 0 0 0 0 0 5 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0	Precision	Recall 0.8820 0.9793 0.9161 0.8108 0.5814 0.8529 0.4667 0.5000	F-score  0.8042 0.9875 0.9258 0.8696 0.6173 0.8657 0.3590 0.6667	<u>Overall A</u> 82.70%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	2 (c)	5 7 0 131 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	16 0 0 90 0 0 0 1	12 0 0 0 25 6 0 0	2 0 1 0 4 <b>58</b> 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0	11 0 0 1 1 1 0 0 0 0 0 7	8 1 1 0 0 0 0	8 0 0 0 0 0 0 0	3 AREA 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1, Art 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0	Precision  0.7390 0.9958 0.9357 0.9375 0.6579 0.8788 0.2917 1.0000 0.5833	Recall 0.8820 0.9793 0.9161 0.8108 0.5814 0.8529 0.4667 0.5000 0.3333	F-score  0.8042 0.9875 0.9258 0.8696 0.6173 0.8657 0.3590 0.6667 0.4242	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	2 (c)	5 7 0 131 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	16 0 0 90 0 0 1 0 0	12 0 0 0 25 6 0 0	2 0 1 0 4 58 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0	11 0 0 1 1 1 0 0 0 0 7 0 0 0 0 0 0 0 0 0	8 1 0 0 0 0 0	8 0 0 0 0 0 0 0	3 ARS 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0	Precision  0.7390 0.9958 0.9357 0.9375 0.6579 0.8788 0.2917 1.0000 0.5833 0.5000	Recall 0.8820 0.9793 0.9161 0.8108 0.5814 0.8529 0.4667 0.5000 0.3333 0.3529	F-score  0.8042 0.9875 0.9258 0.8696 0.6173 0.8657 0.3590 0.6667 0.4242 0.4138	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	2 (c)	7 0 131 0 131 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 0 90 0 0 1 0 0 0	12 0 0 0 25 6 0 0	2 0 1 0 4 58 0 0 0	0 0 0 0 1 0 0 1 1 0 0 1 1	9 0 0 0 0 0 0 0	11 0 0 1 1 0 0 0 7 0	8 1 1 0 0 0 0 0 0	8 0 0 0 0 0 0 2 0 1	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 3	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0	Precision  0.7390 0.9958 0.9357 0.9375 0.6579 0.8788 0.2917 1.0000 0.5833 0.5000 0.2222	Recall 0.8820 0.9793 0.9161 0.8108 0.5814 0.8529 0.4667 0.5000 0.3333 0.3529 0.1429	F-score  0.8042 0.9875 0.9258 0.8696 0.6173 0.8657 0.3590 0.6667 0.4242 0.4138 0.1739	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	2 (c)	7 0 131 0 131 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 0 90 0 0 1 0 0 0 0 0 0 0 0 0 0	12 0 0 0 25 6 0 0 0	2 0 1 0 4 58 0 0 0 0 0	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	11 0 0 1 1 0 0 0 7 0 0	8 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 2 0 1 0 2	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0	Precision  0.7390 0.9958 0.9357 0.9375 0.6579 0.8788 0.2917 1.0000 0.5833 0.5000 0.2222 0.4286	Recall 0.8820 0.9793 0.9161 0.8108 0.5814 0.8529 0.4667 0.5000 0.3333 0.3529 0.1429 0.2500	F-score  0.8042 0.9875 0.9258 0.8696 0.6173 0.8657 0.3590 0.6667 0.4242 0.4138 0.1739 0.3158	

Figure C.20: Experiment Run 50: Emoticons Assigned "UH" Tag

Figures C.21 through C.30 show the results of corresponding experiment runs with emoticons tagged as "EMO".

Using Actu		S tags	$\overline{}$	et fins	Jion yndi	estion	Que stion	ķ, phe	EM	nasis	Reign	J. VAUS	nAn.	onet Clarify	Othe				<u>Overall</u>
	/5	<u>/ 57</u>	/ O`	/ 4	/ 4 /	111	/ P <sup>Q</sup> /	/ & /	/ W /	/ 00/	100/	/ 4r/	14	/ 0 /			<u>Recall</u>	F-score	Accuracy
Statement	301	4	4	11	10	4	6	6	13	11	6	3	2	2	1	0.7839	0.8853	0.8315	85.41%
System	1	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9964	0.9821	0.9892	
Greet	14	0	118	2	0	0	0	1	0	0	0	1	0	0	0	0.8676	0.9593	0.9112	
Emotion	2	0	0	97	0	0	0	0	1	1	0	0	0	0	0	0.9604	0.8584	0.9065	
ynQuestion	4	1	1	0	43	6	0	0	1	0	1	0	0	0	0	0.7544	0.7288	0.7414	
whQuestion	1	0	0	0	6	47	0	0	1	0	0	0	0	0	0	0.8545	0.8246	0.8393	
Accept	6	0	0	1	0	0	12	0	0	0	0	2	0	0	0	0.5714	0.5714	0.5714	
Bye	1	0	0	1	0	0	0	18	1	0	0	0	0	0	0	0.8571	0.7200	0.7826	
Emphasis	2	0	0	1	0	0	1	0	5	0	0	0	0	0	0	0.5556	0.2174	0.3125	
Continuer	1	0	0	0	0	0	0	0	0	4	0	1	0	1	0	0.5714	0.2353	0.3333	
Reject	6	0	0	0	0	0	1	0	1	1	3	0	1	0	0	0.2308	0.3000	0.2609	
yAnswer	0	0	0	0	0	0	1	0	0	0	0	5	0	0	0	0.8333	0.4167	0.5556	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1.0000	0.4000	0.5714	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	0.0000	undef	
O41-																			
Other Using Che	•			0	0	0	0	0	0	0	0	0	0	0	1	0.5000	0.5000	0.5000	
	ap PO	S tags	;																
Using Che	ap PC	S tags	gen Gre	et frus	Jilon Vindi	estion	We ston	NA PAR	End	nasis Cont	Reier	J VANS	nAns.	Julei Clarifu	Othe	Precision	Recall	F-score	
Using Che	ap PC خ <sup>ری</sup> <b>297</b>	S tags	gern Gie	et Graf	stion of the stiff	estion who	The sign by the sign of the si	\$\frac{1}{8}\frac{1}{8	Emp 13	nasis Cont	Reject 8	JANS 3	nAns	onet Cath	Othe 1	Precision 0.7655	Recall 0.8735	<u>F-score</u> 0.8159	
Using Che	ap PO	S tags	gen Gie	13 2	dion Oi	estion with 4	Duesion 7 0	5 0	13 0	nasis Cont 11 0	Reject Re	APUE	nant	Swei Caiff	Other of the other o	Precision 0.7655 0.9893	Recall 0.8735 0.9893	F-score 0.8159 0.9893	
Using Chean Statement System Greet	ap PC	S tags  S tags  S tags  3  277	5 0 117	13 2 1	Jilon Vinoli Vin	phi 4 0 1	Tuesion Acce 7 0	5 0 1	13 0 0	Continue of the continue of th	Reject Re	7 Ans	narra narra 2 0 0	Clarify 0 0	0 Office 1 0 0 0	Precision 0.7655 0.9893 0.8797	Recall 0.8735 0.9893 0.9512	F-score 0.8159 0.9893 0.9141	
Using Chean Statement System Greet Emotion	ap PO  297  1  13	S tags    S tags   S   S   S   S   S   S   S   S   S	5 0 117 0	13 2 1 96	14 0 0 0	estion which	Design of the control	5 0 1	13 0 0 1	11 0 0 1	Reight Re	3 0 0 0	ner nere	Cairle O	0 Othe 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496	F-score 0.8159 0.9893 0.9141 0.9057	
Statement System Greet Emotion ynQuestion	ap PC නිර් 297 1 13 1	S tags  S tags  S tags  3  277  0  0  0	5 0 117 0	13 2 1 96	14 0 0 0 38	4 0 1 0 4	Desiron Page 1	5 0 1 0	13 0 0 1 1	11 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reference of the control of the cont	7 Ansi 7	2 0 0 0	Caffel Control of the	0 0 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496 0.6441	F-score 0.8159 0.9893 0.9141 0.9057 0.6667	
Statement System Greet Emotion ynQuestion whQuestion	297 1 13 1 11 0	S tags  S tags  3  277  0  0  0	5 0 117 0	13 2 1 96 0	14 0 0 0 38 6	4 0 1 0 4 48	Desilot Page 1	5 0 1 0 0	13 0 0 1 1 0	11 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reference of the control of the cont	3 0 0 0 0	7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Calify Coalify 2 0 0 0	0 0 0 0 0 0 0 0	0.7655 0.9893 0.8797 0.9697 0.6909 0.8889	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421	F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649	
Statement System Greet Emotion ynQuestion whQuestion Accept	297 1 13 1 11 0	S tags  S tags  3  277  0  0  0  0	5 0 117 0 1 0	13 2 1 96 0 0	14 0 0 0 38 6	4 0 1 0 4 48 0	7 0 0 0 0 11	5 0 1 0 0	13 0 0 1 1 0 0	11 0 0 0 0 0 0 0 0	Reference of the control of the cont	3 0 0 0 0 0 0 4	7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Cairles O O O O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238	F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	297 1 13 1 11 0 5	S tags  S tags  3  277  0  0  0  0  0	5 0 117 0 1 0 0	13 2 1 96 0 0 0	14 0 0 0 0 38 6 0	4 0 1 0 4 48 0 0	7 0 0 0 0 0 11	5 0 1 0 0 0	13 0 0 1 1 0 0	11 0 0 1 0 0 0 0 0 0 0 0	8 0 0 0 0 0	3 0 0 0 0 0 4 0	7,RTE 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600	F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	297 1 13 1 11 0 5 1	S tags  3  277  0  0  0  0  0  0	5 0 117 0 1 0 0 0	13 2 1 96 0 0 0	14 0 0 0 0 38 6 0 0	4 0 1 0 4 48 0 0	7 0 0 0 0 0 11 0 1	5 0 0 1 0 0 0 0	13 0 0 1 1 0 0 0 1 5	11 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0	3 3 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500 0.9048	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174	F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	297 1 13 11 0 5 1 3	S tags  3  277  0  0  0  0  0  0  0  0	5 0 117 0 0 0 0 0	13 2 1 96 0 0 0 0 0	14 0 0 0 38 6 0 0	4 0 0 0 0 0 0 0 0	7 0 0 0 0 0 11 0 1 0 0	5 0 1 0 0 0 0 0 0	13 0 0 1 1 0 0 0 1 5	11 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0	3 3 0 0 0 0 0 0 0 0 0 0	7,8,18,18,18,18,18,18,18,18,18,18,18,18,1	0 0 0 0 0 0 1	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500 0.9048 0.5000	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	297 1 13 1 11 0 5 1 3 2	S tags  277  0  0  0  0  0  0  0	5 0 117 0 0 0 0 0 0	13 2 1 96 0 0 0 0 0	14 0 0 0 38 6 0 0 0	4 0 1 1 0 4 48 0 0 0 0 0 0	7 0 0 0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0	13 0 0 1 1 0 0 0 1 5 1	11 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 1	0 0 0 0 0 0 0	0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500 0.9048 0.5000 0.4000 0.2222	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap PC  297  1 13  1 11  0 5 1 3 2 5 0	S tags  277  0  0  0  0  0  0  0  0  0	55 00 117 0 0 0 0 0 0 0	13 2 1 96 0 0 0 0 0 0	14 0 0 0 38 6 0 0 0	4 4 48 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 11 0 0 0 1	5 0 0 0 0 0 0 0 0 0 0 0	13 0 0 1 1 1 0 0 0 1 1 1 5 1 1 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 4 0 0 0 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000 0.3333	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105 0.4706	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap PC  297  1 13 1 11 0 5 1 3 2 5 0 0	S tags  3  277  0  0  0  0  0  0  0  0  0  0	5 0 117 0 0 0 0 0 0 0 0 0 0 0	13 2 1 96 0 0 0 0 0 0 0 0 0	14 0 0 0 38 6 0 0 0 0	4 0 1 1 0 4 4 4 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 11 0 0 1 1 1	5 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	13 0 0 1 1 0 0 0 1 1 5 1 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 4 0 0 0 4 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7655  0.9893  0.8797  0.9697  0.6909  0.8889  0.5500  0.9048  0.5000  0.4000  0.2222  0.8000  0.7500	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000 0.3333 0.6000	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap PC  297  1 13  1 11  0 5 1 3 2 5 0	S tags  277  0  0  0  0  0  0  0  0  0	55 00 117 0 0 0 0 0 0 0	13 2 1 96 0 0 0 0 0 0	14 0 0 0 38 6 0 0 0	4 4 48 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 11 0 0 0 1	5 0 0 0 0 0 0 0 0 0 0 0	13 0 0 1 1 1 0 0 0 1 1 1 5 1 1 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 4 0 0 0 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000 0.3333	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105 0.4706	<u>Overall A</u> 84.59%

Figure C.21: Experiment Run 5: Emoticons Assigned "EMO" Tag

Using Actu		S tags		et fins	dion ynd	estion Restion	Que stion	/ gi/ 64°/	Empl	lasis (	Rejet Peiet	y Arres	net nert	onet Clarity	Other				<u>Overall</u>
	/50	/ ST		/ 4	/ 4/	111	/ 80/	/ X /	/ W /	/ O <sup>2</sup> /	/ 20/	/ 4r/	14	/ 04/			<u>Recall</u>	F-score	Accuracy
Statement	282	3	5	15	11	6	9	4	10	7	14	8	3	6	0	0.7363	0.8650	0.7955	83.81%
System	0	249	1	0	0	0	0	0	0	0	0	0	0	0	0	0.9960	0.9881	0.9920	
Greet	12	0	136	2	0	1	0	0	0	1	0	0	0	0	0	0.8947	0.9444	0.9189	
Emotion	3	0	1	93	0	0	0	0	0	0	0	0	0	0	0	0.9588	0.8378	0.8942	
ynQuestion	6	0	1	0	36	4	0	0	0	0	0	1	0	0	0	0.7500	0.7059	0.7273	
whQuestion	3	0	0	1	1	38	0	0	0	0	0	0	0	0	0	0.8837	0.7755	0.8261	
Accept	9	0	0	0	0	0	17	0	0	0	0	3	0	0	0	0.5862	0.6296	0.6071	
Bye	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	1.0000	0.7500	0.8571	
Emphasis	4	0	0	0	2	0	0	0	5	0	0	1	0	0	0	0.4167	0.3125	0.3571	
Continuer	6	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0.3000	0.2727	0.2857	
Reject	1	0	0	0	1	0	0	0	1	0	4	0	3	0	0	0.4000	0.2222	0.2857	
yAnswer	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1.0000	0.2353	0.3810	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1.0000	0.2500	0.4000	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	0.0000	undef	
Othor	_									_						4 0000			
Other Using Chea	•			0	0	0	0	0	0	0	0	0	0	0	4	1.0000	1.0000	1.0000	
	ар РО	S tags	3								/								Overall A
Using Chea	ap PO	S tags	Serr Gre	et frus	Jilon VinO	Jestion wh	Die stor	gt bye	Empl	lasis Con	Reiec	VARS	nAns	wei Claift	Other	Precision	Recall	F-score	
Using Chea	ap PO ح ح 279	S tags	gen Gie	\$\frac{1}{4}	stion vinos	estion who	Duestion 8	RIT OF P	Erndi 13	Jasis Cont	Reigi 12	yArsi 9	ner nere 2	onet Clark	Other 1	<u>Precision</u> 0.7323	Recall 0.8558	<u>F-score</u> 0.7893	
Using Chea	ap PO	S tage	gern Gie	16 0	didn O	RESIDE WITH	Diesion Rece 8	4 0	######################################	Zasis Cont	Reigi 12	yAnsi 9 0	nant 2 0	Swei Claife	Office of the of	Precision 0.7323 0.9880	Recall 0.8558 0.9841	F-score 0.7893 0.9861	
Using Chea	ap PO  279  2 10	S tags  S tags  4  248	5 1 136	16 0 2	Jilon Olivorial Street of the Control of the Contro	Jestion 4 0 0	Question Acce 8 0	4 0 0	(2) (13) (13) (10) (10) (10) (10) (10) (10) (10) (10	Control of the contro	Reper 12	yAnsi 9 0	narra narra 2 0 0	Caith 6 0	0 Office 1 0 0 0	Precision 0.7323 0.9880 0.9067	Recall 0.8558 0.9841 0.9444	F-score 0.7893 0.9861 0.9252	
Statement System Greet Emotion	ap PO  578  279  2  10  3	S tags  S tags  Energy  4  248  0 0	5 5 1 136	16 0 2 91	11 0 0 0	ulti de la companya d	Discourse of the control of the cont	4 0 0	13 0 0	7 0 1 0	12 0 0	9 0 0	nAnti	Cairle O	0 0 0 1	Precision 0.7323 0.9880 0.9067 0.9479	Recall 0.8558 0.9841 0.9444 0.8273	F-score 0.7893 0.9861 0.9252 0.8835	
Statement System Greet Emotion ynQuestion	279 2 10 3 6	S tags  Etre  S  4  248  0  0	5 1 136 1	16 0 2 91	11 0 0 0 35	# 4 0 0 0 0 2	Deciun Deciun Paris	4 0 0 0	######################################	7 0 1 0	12 0 0 0	9 0 0 1	7, Art. 2 0 0 0 0 0	Calif	0 0 0 1 0 0	Precision	Recall 0.8558 0.9841 0.9444 0.8273 0.6863	F-score 0.7893 0.9861 0.9252 0.8835 0.7292	
Statement System Greet Emotion ynQuestion whQuestion	3 6 4	S tags  S tags  4  248  0  0  0	5 1 136 1 0	16 0 2 91 0	11 0 0 0 35 3	4 0 0 0 2 43	Diesion Diesio	4 0 0 0 0	######################################	7 0 1 0 0	12 0 0 0 0	9 0 0 0 1	7 name 2 0 0 0 0 0 0 0 0	Cairy Coairy 6 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7323 0.9880 0.9067 0.9479 0.7778 0.8431	Recall 0.8558 0.9841 0.9444 0.8273 0.6863 0.8776	F-score 0.7893 0.9861 0.9252 0.8835 0.7292 0.8600	
Statement System Greet Emotion ynQuestion whQuestion Accept	279 2 10 3 6 4 9	S tags  4  248  0  0  0  0	5 5 1 136 1 0 0	16 0 2 91 0 1	11 0 0 0 35 3	4 0 0 0 2 43 0	Diesion   Dies	4 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 1 0 0 0	12 0 0 0 0	9 0 0 0 1 0 2	2 0 0 0 0 0	Cairles O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7323 0.9880 0.9067 0.9479 0.7778 0.8431 0.5926	Recall 0.8558 0.9841 0.9444 0.8273 0.6863 0.8776 0.5926	F-score 0.7893 0.9861 0.9252 0.8835 0.7292 0.8600 0.5926	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	279 2 10 3 6 4 9	S tags 4 248 0 0 0 0 0	5 1 136 1 0 0	16 0 2 91 0 1 0 0	11 0 0 0 35 3 0	4 0 0 0 2 43 0	8 0 0 0 0 0 0	4 0 0 0 0 0 0	######################################	7 0 1 0 0 0 0	12 0 0 0 0 0 0	9 0 0 0 1 0 2	7, R. T. P.	0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8558 0.9841 0.9444 0.8273 0.6863 0.8776 0.5926 0.7500	F-score 0.7893 0.9861 0.9252 0.8835 0.7292 0.8600 0.5926 0.8276	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	279 2 10 3 6 4 9 1	S tags 4 248 0 0 0 0 0 0	5 1 136 1 0 0 0	16 0 2 91 0 0 0 0	11 0 0 0 35 3 0 0	4 0 0 0 2 43 0 0	1 0 0 0 16 0 0	4 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0	7 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0	9 0 0 0 0 1 0 2	7, April 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7323 0.9880 0.9067 0.9479 0.7778 0.8431 0.5926 0.9231 0.2500	Recall 0.8558 0.9841 0.9444 0.8273 0.6863 0.8776 0.5926 0.7500 0.1250	F-score 0.7893 0.9861 0.9252 0.8835 0.7292 0.8600 0.5926 0.8276 0.1667	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	279 200 300 60 40 90 11 40 60	S tags  4  248  0  0  0  0  0  0  0  0	5 1 136 1 0 0 0 0	16 0 2 91 0 1 0 0 0	11 0 0 0 35 3 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 16 0 0 1	4 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0	7 0 1 0 0 0 0 0	12 0 0 0 0 0 0	9 0 0 0 1 0 2 0 1	7, R. T. C.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7323 0.9880 0.9067 0.9479 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000	Recall 0.8558 0.9841 0.9444 0.8273 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727	F-score 0.7893 0.9861 0.9252 0.8835 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	279 2 10 3 6 4 9 1 4 6 1	S tags  4  248  0  0  0  0  0  0  0  0  0	5 1 136 1 0 0 0 0 0	16 0 2 91 0 0 0 0 0	11 0 0 0 35 3 0 0	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0	7 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 1 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7323 0.9880 0.9067 0.9479 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000 0.4545	Recall  0.8558 0.9841 0.9444 0.8273 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778	F-score 0.7893 0.9861 0.9252 0.8835 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	279 2 10 3 6 4 9 1 4 6 1	S tags 4 248 0 0 0 0 0 0 0 0 0 0	55 1 136 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 2 91 0 0 0 0 0 0	11 0 0 0 35 3 0 0 1	4 0 0 0 2 43 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 16 0 0 1 1 0 0 1 1	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0	7 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 1 0 0	2 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7323 0.9880 0.9067 0.9479 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000 0.4545 0.8000	Recall  0.8558 0.9841 0.9444 0.8273 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778 0.2353	F-score 0.7893 0.9861 0.9252 0.8835 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448 0.3636	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	279 2 10 3 6 4 9 1 4 6 1	S tags 4 248 0 0 0 0 0 0 0 0 0 0 0	5 1 136 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 2 91 0 0 0 0 0 0 0	11 0 0 0 35 3 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 2 43 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 16 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 1 0 0 4	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7323 0.9880 0.9067 0.9479 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000 0.4545 0.8000 0.6000	Recall  0.8558 0.9841 0.9444 0.8273 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778 0.2353 0.3750	F-score 0.7893 0.9861 0.9252 0.8835 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448	Overall A 83.24%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	279 2 10 3 6 4 9 1 4 6 1	S tags 4 248 0 0 0 0 0 0 0 0 0 0	55 1 136 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	16 0 2 91 0 0 0 0 0 0	11 0 0 0 35 3 0 0 1	4 0 0 0 2 43 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 16 0 0 1 1 0 0 1 1	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0	7 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 1 0 0	2 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7323 0.9880 0.9067 0.9479 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000 0.4545 0.8000	Recall  0.8558 0.9841 0.9444 0.8273 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778 0.2353	F-score 0.7893 0.9861 0.9252 0.8835 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448 0.3636	

Figure C.22: Experiment Run 10: Emoticons Assigned "EMO" Tag

<b>3</b>		S tags	$\overline{}$	zi Emdi	Jon Or	estion who	Jestion Acc	edi (e	Emp	lasis of	Reign	St VANS	met nansi	wet Clarif	4 Othe	<b>&gt;</b> //			<u>Overall</u>
	<u>/ છે`</u>	19		/ � `/	41/	141.	/ PU	Sex Ale	/ W`/	/ W	/ Qu'	14h	/ 4r/	/ O. /		<u>Precision</u>	<u>Recall</u>	F-score	<u>Accuracy</u>
Statement	265	6	8	21	11	5	5	4	8	9	11	3	4	0	0	0.7361	0.8833	0.8030	83.58%
System	1	235	2	0	0	0	0	0	0	0	0	0	0	0	0	0.9874	0.9711	0.9792	
Greet	8	0	119	1	1	0	0	2	0	0	0	0	0	0	0	0.9084	0.9084	0.9084	
Emotion	3	0	0	90	0	0	1	0	0	0	0	0	0	0	0	0.9574	0.7826	0.8612	
ynQuestion	9	1	1	0	42	3	0	0	0	0	0	0	0	0	0	0.7500	0.6885	0.7179	
whQuestion	2	0	0	1	5	40	0	0	1	0	0	0	0	0	0	0.8163	0.8333	0.8247	
Accept	6	0	0	1	0	0	6	0	0	1	1	0	0	0	0	0.4000	0.3750	0.3871	
Bye	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	1.0000	0.6667	0.8000	
Emphasis	2	0	1	1	0	0	0	0	9	0	0	0	0	0	0	0.6923	0.4500	0.5455	
Continuer	2	0	0	0	2	0	0	0	1	6	0	0	0	0	0	0.5455	0.3529	0.4286	
Reject	1	0	0	0	0	0	1	0	1	0	5	0	1	0	0	0.5556	0.2778	0.3704	
yAnswer	0	0	0	0	0	0	3	0	0	1	0	6	0	0	0	0.6000	0.6667	0.6316	
nAnswer	1	0	0	0	0	0	0	0	0	0	1	0	4	0	0	0.6667	0.4444	0.5333	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	undef	undef	
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.0000	1.0000	1.0000	
Using Chea	•					/.65									_ <b>-</b>	1.0000	1.0000	1.0000	
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	, (2)0	OS tags	gen Ge		ion viol	estion who	Jestion ACC	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Empl	lasis con	Reier	J. VANS	net rares	Clait	A Othe	Precision	Recall	F-score	Overall A
Statement	ر اخران 256	Jernent System	Green State of State	24	16	6	4	5	Emili 11	lasis Con	Reject 9	yAns 4	net rares	o Clarit	A Othe	Precision 0.7171	<u>Recall</u> 0.8533	<u>F-score</u> 0.7793	
Statement System	<b>256</b> 2	Syleneria 4 238	S S	24 0	16 0	6	0	5 0	######################################	gest Cont	gelec 9	VANS	naret NATS' 4 0	Otariti	Other O	Precision 0.7171 0.9835	Recall 0.8533 0.9835	F-score 0.7793 0.9835	
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Statement System Greet Emotion	256 2 9	4 238 0	5 2 122 0	0 0 88	16 0 1 0	6 0 0	4 0 0	5 0 1 0	######################################	9 0 0	Peer Peer Peer Peer Peer Peer Peer Peer	VARIE 4 0 0 0 0 0	naret on on o	O O O	Othe O	Precision	Recall 0.8533 0.9835 0.9313 0.7652	F-score 0.7793 0.9835 0.9242 0.8544	
Statement System Greet Emotion ynQuestion	256 2 9 2	4 238 0 0	5 2 122 0	24 0 0 <b>88</b> 0	16 0 1	6 0 0 0	4 0 0 1 0	5 0 1 0 0	######################################	9 0 0	Personal Property of the Control of	VATE: 4 0 0 0 0 0 0 0	narional participation of the control of the contro	Cath	0 0 0 0	Precision	Recall 0.8533 0.9835 0.9313 0.7652 0.5902	F-score 0.7793 0.9835 0.9242 0.8544 0.6486	
Statement System Greet Emotion ynQuestion whQuestion	256 2 9 2 12	4 238 0 0 0	5 2 122 0 1 0	24 0 0 88 0	16 0 1 0 36 7	6 0 0 0 1 <b>40</b>	4 0 0 1 0	5 0 1 0 0	Empl 11 0 0 0 0	9 0 0 0	Peier	4 0 0 0 0 0 1	4 0 0 0 0 0 0 0	O O O O	0 0 0 0 0	Precision  0.7171  0.9835  0.9173  0.9670  0.7200  0.7547	Recall 0.8533 0.9835 0.9313 0.7652 0.5902 0.8333	F-score 0.7793 0.9835 0.9242 0.8544 0.6486 0.7921	
Statement System Greet Emotion ynQuestion whQuestion Accept	256 2 9 2 12 3 7	4 238 0 0 0 0	5 2 122 0 1 0 0	24 0 0 88 0 1	16 0 1 0 36 7	6 0 0 0 1 <b>40</b>	4 0 0 1 0 0 7	5 0 1 0 0 0	######################################	9 0 0 0 0	Qee o	VATE: 4 0 0 0 0 0 0 1 2	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	Precision	Recall 0.8533 0.9835 0.9313 0.7652 0.5902 0.8333 0.4375	F-score 0.7793 0.9835 0.9242 0.8544 0.6486 0.7921 0.4118	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	256 2 9 2 12 3 7	4 238 0 0 0 0 0	5 2 122 0 1 0 0	24 0 0 88 0 1 0	16 0 1 0 36 7 0	6 0 0 0 1 <b>40</b> 0	4 0 0 1 0 0 7	5 0 1 0 0 0 0	######################################	9 0 0 0 0 0 0	9 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	Precision	Recall 0.8533 0.9835 0.9313 0.7652 0.5902 0.8333 0.4375 0.6667	F-score 0.7793 0.9835 0.9242 0.8544 0.6486 0.7921 0.4118 0.8000	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	256 2 9 2 12 3 7 0 2	238 0 0 0 0 0 0	5 2 122 0 1 0 0 0	24 0 0 88 0 1 0 0	16 0 1 0 36 7 0 0	6 0 0 1 <b>40</b> 0	4 0 0 1 0 0 7 0	5 0 1 0 0 0 0 12	11 0 0 0 0 0 1 0 0 0 7	9 0 0 0 0 0 0	9 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0	4 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	Precision  0.7171 0.9835 0.9173 0.9670 0.7200 0.7547 0.3889 1.0000 0.6364	Recall 0.8533 0.9835 0.9313 0.7652 0.5902 0.8333 0.4375 0.6667 0.3500	F-score 0.7793 0.9835 0.9242 0.8544 0.6486 0.7921 0.4118 0.8000 0.4516	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	256 2 9 2 12 3 7 0 2	238 0 0 0 0 0 0	5 2 122 0 1 0 0 0 1 0 0	24 0 0 88 0 1 0 0 1	16 0 1 0 36 7 0 0	6 0 0 1 40 0 0	4 0 0 1 0 0 7 0 0 0	5 0 1 0 0 0 0 12 0	11 0 0 0 0 1 0 0 0 7 0 0	9 0 0 0 0 0 0 0 0	Peee	4 0 0 0 0 0 1 2 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	Precision  0.7171 0.9835 0.9173 0.9670 0.7200 0.7547 0.3889 1.0000 0.6364 0.5455	Recall 0.8533 0.9835 0.9313 0.7652 0.5902 0.8333 0.4375 0.6667 0.3500 0.3529	F-score 0.7793 0.9835 0.9242 0.8544 0.6486 0.7921 0.4118 0.8000 0.4516 0.4286	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	256 2 9 2 12 3 7 0 2 4 2	238 0 0 0 0 0 0 0	5 2 122 0 1 0 0 0 0	24 0 0 88 0 1 0 0 0 1	16 0 1 0 36 7 0 0 0 0	6 0 0 1 40 0 0 0	4 0 0 1 0 0 7 0 0 0 0	5 0 1 0 0 0 0 12 0 0	11 0 0 0 0 1 0 0 0 0 1 0 0 1 0 0 1 1 0 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1	9 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 7	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 A C C C C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7171 0.9835 0.9173 0.9670 0.7200 0.7547 0.3889 1.0000 0.6364 0.5455 0.5385	Recall 0.8533 0.9835 0.9313 0.7652 0.5902 0.8333 0.4375 0.6667 0.3500 0.3529 0.3889	F-score 0.7793 0.9835 0.9242 0.8544 0.6486 0.7921 0.4118 0.8000 0.4516 0.4286 0.4516	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	256 2 9 2 12 3 7 0 2 4 2	4 238 0 0 0 0 0 0 0 0 0 0	5 2 122 0 1 0 0 0 0 0	24 0 0 88 0 1 0 0 1 0 0	16 0 1 0 36 7 0 0 0 0	6 0 0 1 40 0 0 0 0	4 0 0 1 0 0 7 0 0 0 0 1 3	5 0 1 0 0 0 0 12 0 0 0	11 0 0 0 0 0 1 0 0 7 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7171 0.9835 0.9173 0.9670 0.7200 0.7547 0.3889 1.0000 0.6364 0.5455 0.5385 0.3333	Recall 0.8533 0.9835 0.9313 0.7652 0.5902 0.8333 0.4375 0.6667 0.3500 0.3529 0.3889 0.2222	F-score 0.7793 0.9835 0.9242 0.8544 0.6486 0.7921 0.4118 0.8000 0.4516 0.4286 0.4516 0.2667	<u>Overall A</u> 82.19%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	256 2 9 2 12 3 7 0 2 4 2	238 0 0 0 0 0 0 0	5 2 122 0 1 0 0 0 0	24 0 0 88 0 1 0 0 0 1	16 0 1 0 36 7 0 0 0 0	6 0 0 1 40 0 0 0	4 0 0 1 0 0 7 0 0 0 0	5 0 1 0 0 0 0 12 0 0	11 0 0 0 0 1 0 0 0 0 1 0 0 1 0 0 1 1 0 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1	9 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 7	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 A C C C C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7171 0.9835 0.9173 0.9670 0.7200 0.7547 0.3889 1.0000 0.6364 0.5455 0.5385	Recall 0.8533 0.9835 0.9313 0.7652 0.5902 0.8333 0.4375 0.6667 0.3500 0.3529 0.3889	F-score 0.7793 0.9835 0.9242 0.8544 0.6486 0.7921 0.4118 0.8000 0.4516 0.4286 0.4516	

Figure C.23: Experiment Run 15: Emoticons Assigned "EMO" Tag

Using Actu		S tags		St. Flui	Jion yndi	estion	Que stion	gt / 84°	Empl	lasis Conti	Relect	y Ansi	net name	owed Clarify	Othe	<u> </u>			<u>Overall</u>
	/50	/ 57	/ O`	/ Ø`	/ 41/	111	/ 80/	/ XY/	/ W /	/ W/	100/	/ 4r/	Ur.	/ 00/			<u>Recall</u>	F-score	<u>Accuracy</u>
Statement	282	4	8	17	10	4	8	5	13	9	6	2	1	0	1	0.7622	0.8952	0.8234	84.71%
System	2	256	1	0	0	0	0	0	0	0	0	0	0	0	0	0.9884	0.9846	0.9865	
Greet	11	0	131	4	0	1	0	1	0	1	1	0	0	0	0	0.8733	0.8973	0.8851	
Emotion	1	0	1	81	0	0	2	0	0	0	0	0	0	0	0	0.9529	0.7714	0.8526	
ynQuestion	2	0	2	0	37	1	0	0	1	0	0	0	0	0	0	0.8605	0.7400	0.7957	
whQuestion	2	0	0	0	3	38	0	0	0	0	0	0	0	0	0	0.8837	0.8636	0.8736	
Accept	5	0	0	1	0	0	15	0	1	0	3	0	0	0	0	0.6000	0.5556	0.5769	
Bye	1	0	1	0	0	0	1	13	0	0	0	0	0	0	0	0.8125	0.6842	0.7429	
Emphasis	2	0	2	1	0	0	0	0	11	0	1	0	0	0	0	0.6471	0.4074	0.5000	
Continuer	1	0	0	0	0	0	0	0	0	4	0	1	0	0	0	0.6667	0.2667	0.3810	
Reject	4	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0.2857	0.1333	0.1818	
yAnswer	1	0	0	1	0	0	1	0	0	0	0	6	0	0	0	0.6667	0.6000	0.6316	
nAnswer	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0.2500	0.5000	0.3333	
Clarify	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.0000	undef	undef	
O41-	_																		
Other Using Chea	•			0	0	0	0	0	0	0	0	0	0	0	4	1.0000	0.8000	0.8889	
	ap PO	S tags	3																Overall A
Using Chea	ap PO	S tags	Seri Gre	et frus	Stion August	le stion	The stick	By Bye	Emp	lasis Conti	nuet Reieco	VARS	ner nere	net Clarity	Othe	Precision	Recall	F-score	
Using Chea	ap PO حرافاً 276	S tags	Serr Gre	21 21	dian And	estion who	Arcsion 8	\$\tilde{\pi}\\ \pi\text{\$\frac{1}{2}\\ \pi\text{\$\frac{1}\}\\ \pi\text{\$\frac{1}\}\\ \pi\$\frac{1	ting 15	Lasis Conti	ruet Reier	yAris'	ner ner	o Clarity	Othe 3	Precision 0.7500	Recall 0.8762	<u>F-score</u> 0.8082	
Using Chea	ap PO	S tage	ern Gre	21 0	Jailon (Q)	sestion and a sestion of the sestion	Diesion Rece 8	4 0	Empl 15 0	Conti 10 0	Reigis 5	VARSI VARSI 0	nAme	O O	Other 3	Precision 0.7500 0.9884	Recall 0.8762 0.9846	F-score 0.8082 0.9865	
Using Chea	ap PO දුන් 276 2	S tags  S tags  S tags  4  256	8 1 132	21 0 2	Jiton Vinali Vin	Jestion 3 0 1	Diesion Acce	4 0 0	######################################	Continue of the continue of th	Description of the second seco	3 0 0	name	Ozifty Ozifty O	3 0 0	Precision 0.7500 0.9884 0.9167	Recall 0.8762 0.9846 0.9041	F-score 0.8082 0.9865 0.9103	
Statement System Greet Emotion	276 2 7	S tags  S tags  S tags  4  256  0 0	8 1 132	21 0 2 79	rich victor vict	Bestion 3 0 1 0	Diedion De la Constantia de la Constanti	4 0 0	15 0 0	10 0 1	True Reservation of the contract of the contra	3 0 0		Cairle O O O	3 0 0	Precision 0.7500 0.9884 0.9167 0.9634	Recall 0.8762 0.9846 0.9041 0.7524	F-score 0.8082 0.9865 0.9103 0.8449	
Statement System Greet Emotion ynQuestion	300 PO 276 2 7 1 6	S tags  256  0  0	8 1 132 1	21 0 2 79	7 0 0 0 34	3 0 1 0	Design De	4 0 0 0	######################################	10 0 1 0 0	S O 1 O O	3 0 0 0		Caird	3 0 0 0 0	Precision 0.7500 0.9884 0.9167 0.9634 0.7727	Recall 0.8762 0.9846 0.9041 0.7524 0.6800	F-score 0.8082 0.9865 0.9103 0.8449 0.7234	
Statement System Greet Emotion ynQuestion whQuestion	276 2 7 1 6	S tags 256 0 0 0	8 1 132 1 0	21 0 2 79 0	7 0 0 0 34	3 0 1 0 1 38	Diesilon Naces 8 0 0 0	4 0 0 0 0	######################################	10 0 1 0 0 0	5 0 1 0 0	7 ARS	7,A7,12,12,13,13,13,13,13,13,13,13,13,13,13,13,13,	O O O O O	0 0 0 0 0 1 0	Precision 0.7500 0.9884 0.9167 0.9634 0.7727 0.7451	Recall 0.8762 0.9846 0.9041 0.7524 0.6800 0.8636	F-score 0.8082 0.9865 0.9103 0.8449 0.7234 0.8000	
Statement System Greet Emotion ynQuestion whQuestion Accept	3 7	S tags  Stags  4  256  0  0  0  0	8 1 132 1 0 0	21 0 2 79 0 1	7 0 0 0 34 9	3 0 1 0 1 38 0	Desiration 20	4 0 0 0 0 0	15 0 0 0 1 0	10 0 0 0 0 0	200 0 0 0 3	3 0 0 0 0 0	1 0 0 0 0 0 0 0 0	O O O O O	3 0 0 0 0 1 0	Precision	Recall 0.8762 0.9846 0.9041 0.7524 0.6800 0.8636 0.6296	F-score 0.8082 0.9865 0.9103 0.8449 0.7234 0.8000 0.6071	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	276 2 7 1 6 3 7	S tags  S tags  4  256  0  0  0  0  0	8 1 132 1 0 0	21 0 2 79 0 1 0 0	7 0 0 0 0 34 9	3 0 1 0 1 38 0 0	8 0 0 0 1 0 0	4 0 0 0 0 0 0	######################################	10 0 0 0 0 0 0	5 0 0 0 0 0	3 0 0 0 0 0	1 0 0 0 0 0	O O O O O O	3 0 0 0 0 0 0 0	Precision	Recall 0.8762 0.9846 0.9041 0.7524 0.6800 0.8636 0.6296 0.7895	F-score 0.8082 0.9865 0.9103 0.8449 0.7234 0.8000 0.6071 0.8571	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	276 276 2 7 1 6 3 7 0	S tags  S tags  4  256  0  0  0  0  0  0	8 1 132 1 1 0 0 1 2	21 0 2 79 0 1 0 0	7 0 0 0 34 9 0 0	3 0 1 0 1 38 0 0	1	4 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9	10 0 0 0 0 0 0 0	5 0 0 0 0 0 0	3 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O O O O O O O	3 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8762 0.9846 0.9041 0.7524 0.6800 0.8636 0.6296 0.7895 0.3333	F-score 0.8082 0.9865 0.9103 0.8449 0.7234 0.8000 0.6071 0.8571 0.4286	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	276 276 2 7 1 6 3 7 0	S tags  4  256  0  0  0  0  0  0  0	8 1 132 1 0 0 1 2	21 0 2 79 0 1 0 0 0	7 0 0 0 34 9 0 0	3 0 1 0 1 38 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9	10 0 0 0 0 0 0 0 0	5 0 1 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0	Precision	Recall 0.8762 0.9846 0.9041 0.7524 0.6800 0.8636 0.6296 0.7895 0.3333 0.2667	F-score  0.8082 0.9865 0.9103 0.8449 0.7234 0.8000 0.6071 0.8571 0.4286 0.3810	<u>Overall A</u> 83.46%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	276 276 2 7 1 6 3 7 0	S tags  4  256  0  0  0  0  0  0  0  0  0	8 1 132 1 0 0 1 2 0 0	21 0 2 79 0 1 0 0 0	7 0 0 0 34 9 0 0	3 0 1 1 38 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 0 0 0 1 1 0 0 0 1 1 0 0 1 1 0 0 1 1 0 1	10 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 1 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7500 0.9884 0.9167 0.9634 0.7727 0.7451 0.5862 0.9375 0.6000 0.6667 0.2857	Recall 0.8762 0.9846 0.9041 0.7524 0.6800 0.8636 0.6296 0.7895 0.3333 0.2667 0.1333	F-score  0.8082 0.9865 0.9103 0.8449 0.7234 0.8000 0.6071 0.8571 0.4286 0.3810 0.1818	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	276 276 2 7 1 6 3 7 0 3	S tags 4 256 0 0 0 0 0 0 0 0 0	8 1 132 1 1 0 0 0 1 1 2 0 0 0 0 0	21 0 2 79 0 1 0 0 0 0 1	7 0 0 0 0 34 9 0 0 0	3 0 1 0 1 3 3 3 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9 0	10 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 1 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7500 0.9884 0.9167 0.9634 0.7727 0.7451 0.5862 0.9375 0.6000 0.6667 0.2857 0.4444	Recall 0.8762 0.9846 0.9041 0.7524 0.6800 0.8636 0.6296 0.7895 0.3333 0.2667 0.1333 0.4000	F-score  0.8082 0.9865 0.9103 0.8449 0.7234 0.8000 0.6071 0.8571 0.4286 0.3810 0.1818 0.4211	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer nAnswer	276 276 2 7 1 6 3 7 0 3 1 4 2	S tags 4 256 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 1 132 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	21 0 2 79 0 1 0 0 0 1 0 0	7 0 0 0 0 34 9 0 0 0 0	3 0 1 1 3 3 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9 0 1 0	10 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 1 0 0 4	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7500 0.9884 0.9167 0.9634 0.7727 0.7451 0.5862 0.9375 0.6000 0.6667 0.2857 0.4444 0.1250	Recall 0.8762 0.9846 0.9041 0.7524 0.6800 0.8636 0.6296 0.7895 0.3333 0.2667 0.1333 0.4000 0.5000	F-score  0.8082 0.9865 0.9103 0.8449 0.7234 0.8000 0.6071 0.8571 0.4286 0.3810 0.1818 0.4211 0.2000	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	276 276 2 7 1 6 3 7 0 3	S tags 4 256 0 0 0 0 0 0 0 0 0	8 1 132 1 1 0 0 0 1 1 2 0 0 0 0 0	21 0 2 79 0 1 0 0 0 0 1	7 0 0 0 0 34 9 0 0 0	3 0 1 0 1 3 3 3 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9 0	10 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 1 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7500 0.9884 0.9167 0.9634 0.7727 0.7451 0.5862 0.9375 0.6000 0.6667 0.2857 0.4444	Recall 0.8762 0.9846 0.9041 0.7524 0.6800 0.8636 0.6296 0.7895 0.3333 0.2667 0.1333 0.4000	F-score  0.8082 0.9865 0.9103 0.8449 0.7234 0.8000 0.6071 0.8571 0.4286 0.3810 0.1818 0.4211	

Figure C.24: Experiment Run 20: Emoticons Assigned "EMO" Tag

	State	s tags ment system	Stu Cles	zi kindi	Jon Vilas	estion who	Jestion ACC	edt tind	Bye Bye	Conti	Relea	A VANS	met nansi	met Other	Clair	Precision	Recall	F-score	Overall Accuracy
Statement	250	1	6	18	8	1	7	9	6	8	11	0	4	0	4	0.7440	0.8224	0.7813	
System		275	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9892	0.9857	0.7013	
Greet	17		116	1	1	0	0	0	3	1	0	0	0	0	0	0.8345	0.9063	0.8689	
Emotion	6	0	0	106	0	0	2	0	0	0	0	0	0	0	0	0.9298	0.8346	0.8797	
/nQuestion	7	0	2	0	38	2	0	0	0	0	0	0	0	0	0	0.7755	0.7308	0.7525	-
hQuestion	4	0	1	0	4	39	0	1	0	0	0	0	0	0	0	0.7959	0.9070	0.8478	
Accept	7	0	0	1	0	0	5	0	0	0	0	3	0	0	0	0.3125	0.2632	0.2857	
Emphasis	3	0	2	1	0	0	1	7	1	0	0	0	0	0	0	0.4667	0.3889	0.4242	
Bye	2	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0.8750	0.5600	0.6829	
Continuer	2	0	0	0	0	0	0	1	0	4	0	1	0	0	0	0.5000	0.2857	0.3636	
Reject	2	0	0	0	0	1	0	0	0	0	4	0	2	0	0	0.4444	0.2667	0.3333	
yAnswer	0	0	1	0	1	0	4	0	0	0	0	3	0	0	0	0.3333	0.4286	0.3750	
nAnswer	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0.5000	0.2500	0.3333	1
Other	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.0000	0.0000	undef	
Clarify	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
		/×	$\overline{/}$	/	/	/ <sub>.0</sub> n	701		/.6.	<u> </u>	/	<u> </u>				///			
	ciate	THE THE TENE	su s	st Indi	on Or	estion	uestion NCC	egt Ind	indests ove	conti	inter Ceies	Ans	wet Arsi	net other	C, Rain	Recoicion	Doodl	F 22272	Overall A
Statement	State	System			Jon Vilar	estion who	uestion Acc	edt End	Resis PAR		niet Reies			avet Other			Recall	F-score	
	260	2	7	21	9	1	7	11	7	9	9	2	5	0	4	0.7345	0.8553	0.7903	
System	<b>260</b>	2 <b>276</b>	7	21 0	9	0	7	11	7	9	9	0	5 0	0	4 0	0.7345 0.9928	0.8553 0.9892	0.7903 0.9910	
System Greet	2 <b>60</b> 2 16	2 <b>276</b> 0	7 0 <b>116</b>	21 0 0	9 0 1	1 0 1	7 0 0	11 0 0	7 0 2	9 0 1	9 0 0	2 0 0	5 0 0	0 0	4 0 0	0.7345 0.9928 0.8467	0.8553 0.9892 0.9063	0.7903 0.9910 0.8755	
System Greet Emotion	2 16 3	2 <b>276</b> 0 0	7 0 <b>116</b> 0	0 0 <b>105</b>	9 0 1 0	1 0 1 0	7 0 0 2	11 0 0 0	7 0 2 1	9 0 1 0	9 0 0	2 0 0	5 0 0	0 0 0	4 0 0 0	0.7345 0.9928 0.8467 0.9459	0.8553 0.9892 0.9063 0.8268	0.7903 0.9910 0.8755 0.8824	
System Greet Emotion ynQuestion	2 16 3 9	2 276 0 0 0	7 0 <b>116</b> 0 2	21 0 0 <b>105</b> 0	9 0 1 0 37	1 0 1 0 2	7 0 0 2 0	11 0 0 0 0	7 0 2 1 0	9 0 1 0 0	9 0 0 0	2 0 0 0 0	5 0 0 0	0 0 0 0	4 0 0 0	0.7345 0.9928 0.8467 0.9459 0.7400	0.8553 0.9892 0.9063 0.8268 0.7115	0.7903 0.9910 0.8755 0.8824 0.7255	
System Greet Emotion /nQuestion whQuestion	2 16 3 9 2	2 276 0 0 0 0 0	7 0 <b>116</b> 0 2	21 0 0 <b>105</b> 0	9 0 1 0 <b>37</b> 3	1 0 1 0 2 38	7 0 0 2 0	11 0 0 0 0 0	7 0 2 1 0	9 0 1 0 0	9 0 0 0 0	2 0 0 0 0	5 0 0 0 0	0 0 0 0 0	4 0 0 0 0	0.7345 0.9928 0.8467 0.9459 0.7400 0.8444	0.8553 0.9892 0.9063 0.8268 0.7115 0.8837	0.7903 0.9910 0.8755 0.8824 0.7255 0.8636	
System Greet Emotion /nQuestion /hQuestion Accept	260 2 16 3 9 2 6	2 276 0 0 0 0	7 0 <b>116</b> 0 2 1	21 0 0 <b>105</b> 0 0	9 0 1 0 <b>37</b> 3	1 0 1 0 2 38	7 0 0 2 0 0 5	11 0 0 0 0 0 1	7 0 2 1 0 0	9 0 1 0 0 0	9 0 0 0 0 0	2 0 0 0 0 0 0 4	5 0 0 0 0 0	0 0 0 0 0 0	4 0 0 0 0 0	0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125	0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632	0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857	
System Greet Emotion /nQuestion /hQuestion Accept Emphasis	260 2 16 3 9 2 6 4	2 276 0 0 0 0 0	7 0 116 0 2 1 0 2	21 0 0 105 0 0 0	9 0 1 0 <b>37</b> 3 1	1 0 1 0 2 38 0	7 0 0 2 0 0 5	11 0 0 0 0 0 1 0	7 0 2 1 0 0 0	9 0 1 0 0 0 0	9 0 0 0 0 0	2 0 0 0 0 0 4 0	5 0 0 0 0 0 0	0 0 0 0 0 0	4 0 0 0 0 0 0	0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286	0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.3333	0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.3750	Overall A 83.24%
System Greet Emotion /nQuestion /hQuestion Accept Emphasis Bye	260 2 16 3 9 2 6 4	2 276 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 116 0 2 1 0 2	21 0 0 105 0 0 0 1	9 0 1 0 37 3 1 0	1 0 1 0 2 38 0 0	7 0 0 2 0 0 5 1	11 0 0 0 0 0 1 0 6	7 0 2 1 0 0 0 0	9 0 1 0 0 0 0	9 0 0 0 0 0 0	2 0 0 0 0 0 4 0	5 0 0 0 0 0 0	0 0 0 0 0 0	4 0 0 0 0 0 0	0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286 1.0000	0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.3333 0.6000	0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.3750	
System Greet Emotion /nQuestion /hQuestion Accept Emphasis Bye Continuer	260 2 16 3 9 2 6 4 0	2 276 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 116 0 2 1 0 2 0 0	21 0 0 105 0 0 0 1 0	9 0 1 0 37 3 1 0 0	1 0 1 0 2 38 0 0 0	7 0 0 2 0 0 5 1 0	11 0 0 0 0 1 0 6 0	7 0 2 1 0 0 0 0 15	9 0 1 0 0 0 0 0	9 0 0 0 0 0 0 0	2 0 0 0 0 0 4 0 0	5 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0	0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286 1.0000 0.8000	0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.3333 0.6000 0.2857	0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.3750 0.7500	
System Greet Emotion /nQuestion /hQuestion Accept Emphasis Bye Continuer Reject	260 2 16 3 9 2 6 4 0 1	2 276 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 116 0 2 1 0 2 0 0	21 0 0 105 0 0 0 0 1 0 0	9 0 1 0 37 3 1 0 0 0	1 0 1 0 2 38 0 0 0 0	7 0 2 0 0 5 1 0 0	11 0 0 0 0 1 0 6 0 0	7 0 2 1 0 0 0 0 0 15	9 0 1 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	2 0 0 0 0 0 4 0 0	5 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0	0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286 1.0000 0.8000 0.6667	0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.3333 0.6000 0.2857 0.2667	0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.3750 0.7500 0.4211 0.3810	
System Greet Emotion /nQuestion /hQuestion Accept Emphasis Bye Continuer Reject yAnswer	260 2 16 3 9 2 6 4 0 1	2 276 0 0 0 0 0 0 0 0	7 0 116 0 2 1 0 2 0 0 0	21 0 0 105 0 0 0 0 0 0 0	9 0 1 0 37 3 1 0 0 0	1 0 1 0 2 38 0 0 0 0 0	7 0 2 0 0 5 1 0 0 0	11 0 0 0 0 1 0 6 0 0 0	7 0 2 1 0 0 0 0 15 0	9 0 1 0 0 0 0 0 0 0 0 4	9 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 4 0 0 0 0	5 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0	0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286 1.0000 0.8000 0.6667 0.1667	0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.3333 0.6000 0.2857 0.2667	0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.3750 0.7500 0.4211 0.3810 0.1538	
System Greet Emotion /nQuestion /hQuestion Accept Emphasis Bye Continuer Reject	260 2 16 3 9 2 6 4 0 1	2 276 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 116 0 2 1 0 2 0 0	21 0 0 105 0 0 0 0 1 0 0	9 0 1 0 37 3 1 0 0 0	1 0 1 0 2 38 0 0 0 0	7 0 2 0 0 5 1 0 0	11 0 0 0 0 1 0 6 0 0	7 0 2 1 0 0 0 0 0 15	9 0 1 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	2 0 0 0 0 0 4 0 0	5 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0	0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286 1.0000 0.8000 0.6667	0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.3333 0.6000 0.2857 0.2667	0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.3750 0.7500 0.4211 0.3810	

Figure C.25: Experiment Run 25: Emoticons Assigned "EMO" Tag

<b>9</b> - <b></b>		S tags	$\overline{}$	zi kindi	John Milli	estion	lestion Acc	st trid	lasis ,	CONT	nuet Delec	YARS	nei nansi	yet Claif	Othe	<b>/</b> /			Overall
,	/ 5 <sup>30</sup>	/58	/ G <sup>(6)</sup>	/4th/	Mich	M	/ bcg	/4m/	ANG)	/ W`	/ es/	/by	/VVI	\ C.(g)	\Q_{(1)}	Precision	Recall	F-score	Accuracy
Statement	288	3	7	20	9	6	16	7	7	12	13	1	1	0	1	0.7366	0.9057	0.8124	83.64%
System	1	273	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9964	0.9891	0.9927	
Greet	12	0	141	1	0	2	1	0	1	1	0	0	0	0	0	0.8868	0.9400	0.9126	
Emotion	3	0	0	72	0	0	0	0	0	0	1	0	0	0	0	0.9474	0.7423	0.8324	
ynQuestion	4	0	1	0	34	6	0	0	0	1	0	0	0	0	0	0.7391	0.6667	0.7010	
whQuestion	0	0	0	0	7	45	0	0	0	0	0	1	0	0	0	0.8491	0.7627	0.8036	
Accept	3	0	0	2	1	0	7	0	0	0	2	1	0	0	0	0.4375	0.2593	0.3256	
Emphasis	4	0	0	1	0	0	0	3	1	1	0	0	0	0	0	0.3000	0.3000	0.3000	
Bye	0	0	1	0	0	0	1	0	14	0	0	0	0	0	0	0.8750	0.6087	0.7179	
Continuer	1	0	0	0	0	0	0	0	0	5	0	1	0	0	0	0.7143	0.2500	0.3704	
Reject	2	0	0	1	0	0	0	0	0	0	3	1	2	0	0	0.3333	0.1579	0.2143	
yAnswer	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0.6000	0.3750	0.4615	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0.6667	0.4000	0.5000	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1.0000	1.0000	1.0000	
Other	0	0	0	0	_	_	_			_						4 0000			
Using Chea	ap PC	S tags	3		0	0	0	0	0	0	0	0	0	0	4	1.0000	0.6667	0.8000	
Using Chea	ap PC	S tags	3																Overall A
	ap PC	OS tags	S Green	ž Endi	ion Andr	estion	Acco	agi Lingi	Bye	Carti	nuet Reject	, VANS	nars <sup>1</sup>	Claif	Othe	Precision	Recall	F-score	Overall A
Statement	ap PC	OS tags	S GREET GREE	ž (10) 19	III	estion who	Auesion Acco	agit kingi 7	Bile 6	CONT 9	nuet Relect	yAns 4	narsi 1	chaint 1	Othe 4	Precision 0.7168	Recall 0.8836	<u>F-score</u> 0.7915	Overall A: 82.24%
Statement System	ap PC	OS tags	ern Green	2		section 8	Auestion Acco	EQT LIMIT	Bye 6 0	COMI 9 0	Reigi Reigi	VANS	TATEST 1	Chair	Other 4	Precision 0.7168 0.9964	Recall 0.8836 0.9891	F-score 0.7915 0.9927	
Statement System Greet	عبر المجارية	OS tags  Leftert  3  273	10 0 137	19 0 1	TI 0 0	estion with	pesion 17 0	est tens	6 0	Conti	nuel Respond	4 0 0	net	Call Coll	Othe 4	Precision 0.7168 0.9964 0.9133	Recall 0.8836 0.9891 0.9133	F-score 0.7915 0.9927 0.9133	
Statement System Greet Emotion	281 1 8	273 0	10 0 137	2 4 10 19 0 1 1 74	11 0 0 0	sesion 8 0 1	PCC 17 0 1 0	Edit Lindi 7 0 0	6 0 1	Continue 9 0 1 0 0	THE REPORT OF THE PROPERTY OF	VARE 4 0 0 0 0	net		0 0 0 0	Precision 0.7168 0.9964 0.9133 0.8916	Recall 0.8836 0.9891 0.9133 0.7629	F-score 0.7915 0.9927 0.9133 0.8222	
Statement System Greet Emotion ynQuestion	281 1 8 8	OS tags  OS tags  OS tags  OS tags	10 0 137 1	19 0 1 74	11 0 0 0 30	8 0 1 0 4	pcc	7 0 0 0 0 0	6 0 1 0	Conti 9 0 1 0	nuet Reec 11 0 0 0 1	4 0 0 0 0 0 0	The control of the co	Cath	0 0 0 0 0	Precision	Recall 0.8836 0.9891 0.9133 0.7629 0.5882	F-score 0.7915 0.9927 0.9133 0.8222 0.6383	
Statement System Greet Emotion ynQuestion whQuestion	281 1 8 8 6	0S tags 273 0 0 0	10 0 137 1 1	19 0 1 74 0	11 0 0 0 30 9	8 0 1 0 4 46	17 0 1 0 0 0 0	7 0 0 0 0 0 0 0	6 0 0 0 0	Conti 9 0 1 0 1	nuet Reference 111 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0	1 0 0 0 0 1		0 0 0 0 0 0 0	Precision	Recall 0.8836 0.9891 0.9133 0.7629 0.5882 0.7797	F-score 0.7915 0.9927 0.9133 0.8222 0.6383 0.7797	
Statement System Greet Emotion ynQuestion whQuestion Accept	281 1 8 8 6 1	0S tags 273 0 0 0 0	10 0 137 1 1 0	19 0 1 74 0 0	11 0 0 0 30 9 1	8 0 1 0 4 46 0	17 0 1 0 0 0 7	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0	Conti 9 0 1 0 1 1	11 0 0 0 1 0 2	4 0 0 0 0 0 1 1	1 0 0 0 0 1 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8836 0.9891 0.9133 0.7629 0.5882 0.7797 0.2593	F-score 0.7915 0.9927 0.9133 0.8222 0.6383 0.7797 0.3182	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis	281 1 8 8 6 1 5	9S tags 3 273 0 0 0 0 0	10 0 137 1 1 0 0	19 0 1 74 0 0 1 1	11 0 0 0 30 9 1	8 0 1 0 4 46 0	17 0 1 0 0 0 7 0	7 0 0 0 0 0 0 0 0 3	6 0 0 0 0 0	Continue 9 0 1 1 0 1 1 0 1 1	11 0 0 0 1 1 0 2 0 0	4 0 0 0 0 0 1 1 0 0	1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0	4 0 0 0 0 0 0	Precision	Recall 0.8836 0.9891 0.9133 0.7629 0.5882 0.7797 0.2593 0.3000	F-score 0.7915 0.9927 0.9133 0.8222 0.6383 0.7797 0.3182 0.3000	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye	281 1 8 8 6 1 5	9S tags  273  0  0  0  0  0  0  0	10 0 137 1 0 0 0	19 0 1 74 0 0 1 1 0	11 0 0 0 30 9 1 0	8 0 1 0 4 46 0 0	17 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 1 1 15	Continue 9 0 0 1 1 0 1 1 0 1 0 0 1 0 0 0 0 0 0 0	11 0 0 0 0 1 0 0 0	4 0 0 0 0 1 1 1 0 0 0	1 0 0 0 0 0 1 0 0	C'aith  C'aith	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8836 0.9891 0.9133 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522	F-score 0.7915 0.9927 0.9133 0.8222 0.6383 0.7797 0.3182 0.3000 0.7500	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer	281 1 8 8 6 1 5 4	0S tags 273 0 0 0 0 0 0 0	10 0 137 1 0 0 0 0	19 0 1 74 0 0 1 1 0 0	11 0 0 0 30 9 1 0 0	8 0 1 0 4 46 0 0 0	17 0 1 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 1 1 1 5 0	9 0 1 1 0 1 0 6	11 0 0 0 0 1 0 0 0 0 0 0	4 0 0 0 0 0 1 1 0 0	1 0 0 0 0 0 0 0 0 0 0	C'aith  C'aith	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7168 0.9964 0.9133 0.8916 0.6977 0.7797 0.4118 0.3000 0.8824 0.7500	Recall 0.8836 0.9891 0.9133 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000	F-score 0.7915 0.9927 0.9133 0.8222 0.6383 0.7797 0.3182 0.3000 0.7500 0.4286	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject	3 PC	0S tags 273 0 0 0 0 0 0 0 0	10 0 137 1 0 0 0	19 0 1 74 0 0 0 1 1 0 0	11 0 0 0 30 9 1 0 0 0	8 0 1 0 4 46 0 0 0 0	17 0 1 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 1 1 1 5 0 0	CORTION 9 0 1 1 0 1 1 0 0 6 0 0	11 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 1 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		4 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7168 0.9964 0.9133 0.8916 0.6977 0.7797 0.4118 0.3000 0.8824 0.7500 0.5000	Recall 0.8836 0.9891 0.9133 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579	F-score  0.7915 0.9927 0.9133 0.8222 0.6383 0.7797 0.3182 0.3000 0.7500 0.4286 0.2400	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	281 1 8 8 6 1 5 4 1 2 1	0S tags 273 0 0 0 0 0 0 0 0 0	10 0 137 1 1 0 0 0 0	19 0 1 74 0 0 0 1 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	17 0 1 0 0 0 0 0 0 0 0 0 0 2	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 1 15 0 0	Confined on the confined on th	11 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7168 0.9964 0.9133 0.8916 0.6977 0.7797 0.4118 0.3000 0.8824 0.7500 0.5000 0.4000	Recall 0.8836 0.9891 0.9133 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579 0.2500	F-score  0.7915 0.9927 0.9133 0.8222 0.6383 0.7797 0.3182 0.3000 0.7500 0.4286 0.2400 0.3077	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer nAnswer	281 1 8 8 6 1 5 4 1 2 1 0 0	0S tags 273 0 0 0 0 0 0 0 0 0 0	10 0 137 1 0 0 0 0 0 0	19 0 1 74 0 0 0 1 1 0 0 0 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 1 0 4 46 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	17 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Confined on the confined on th	11 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7168 0.9964 0.9133 0.8916 0.6977 0.7797 0.4118 0.3000 0.8824 0.7500 0.5000 0.4000 0.4000	Recall	F-score  0.7915 0.9927 0.9133 0.8222 0.6383 0.7797 0.3182 0.3000 0.7500 0.4286 0.2400 0.3077 0.4000	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	281 1 8 8 6 1 5 4 1 2 1	0S tags 273 0 0 0 0 0 0 0 0 0	10 0 137 1 1 0 0 0 0	19 0 1 74 0 0 0 1 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	17 0 1 0 0 0 0 0 0 0 0 0 0 2	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 1 15 0 0	Confined on the confined on th	11 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7168 0.9964 0.9133 0.8916 0.6977 0.7797 0.4118 0.3000 0.8824 0.7500 0.5000 0.4000	Recall 0.8836 0.9891 0.9133 0.7629 0.5882 0.7797 0.2593 0.3000 0.6522 0.3000 0.1579 0.2500	F-score  0.7915 0.9927 0.9133 0.8222 0.6383 0.7797 0.3182 0.3000 0.7500 0.4286 0.2400 0.3077	

Figure C.26: Experiment Run 30: Emoticons Assigned "EMO" Tag

Using Actu		S tags		et Em	dion May	estion	Que stion	,gt /	Empl	nasis (	inuet Rejec	VAUS	net nere	Clairy Clairy	Othe				<u>Overall</u>
	15			/ W /	<u> </u>	111	/ P <sup>Q</sup> /	/ <i>&amp;</i> /	<u> </u>	/ W/	/ 40/	4/	(N)	/ 0 /			Recall	F-score	Accuracy
Statement	263	4	0	20	8	7	17	5	9	9	12	2	4	4	0	0.7225	0.8946	0.7994	83.72%
System	2	298	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9933	0.9868	0.9900	
Greet	8	0	114	0	0	0	0	0	2	2	1	0	0	0	1	0.8906	0.9421	0.9157	
Emotion	4	0	4	84	0	0	0	0	0	0	0	0	0	0	0	0.9130	0.7778	0.8400	
ynQuestion	6	0	0	0	39	4	0	0	0	1	0	1	0	0	0	0.7647	0.7647	0.7647	
whQuestion	1	0	0	0	1	52	0	0	0	0	0	0	0	0	0	0.9630	0.8254	0.8889	
Accept	7	0	0	0	1	0	8	0	1	0	2	3	0	0	0	0.3636	0.2963	0.3265	
Bye	0	0	1	0	0	0	0	14	0	0	0	0	0	0	0	0.9333	0.7368	0.8235	
Emphasis	0	0	2	4	1	0	0	0	6	0	0	1	0	0	0	0.4286	0.3000	0.3529	
Continuer	0	0	0	0	0	0	1	0	1	7	0	1	0	0	0	0.7000	0.3684	0.4828	
Reject	1	0	0	0	1	0	0	0	1	0	3	0	3	0	0	0.3333	0.1667	0.2222	
yAnswer	1	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0.6000	0.2727	0.3750	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1.0000	0.3000	0.4615	
Clarify	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
Other	0 an DO	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.0000	0.5000	0.6667	
Using Chea	ар РО	S tags	3																
	ap PO	S tags	3	et frus	Jilon Vilon	Pestion	Duestion Acce	gt / gye	Empl	lasis Con	Reigi Reigi	VARS		ulei Clatifu	Other		0.5000		Overall A
	ар РО	S tags	gen Gre	21 21	stion on the stion of the stion	estion who	Duestion Acce	\$\frac{1}{2}\text{\$\frac{1}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}{2}\text{\$\frac{1}\text{\$\frac{1}\text{\$\frac{1}\text{\$\frac{1}{2}\text{\$\frac{1}\text{\$\frac{1}		Rasis Conti	Reiect 10	yAnsi 2	ner nere	Suet Clarity		<u>Precision</u> 0.7290	Recall 0.9150		
Using Chea	ap PO	S tags	ern Gre	21 1	didn Qi	pestion of the period of the p	Diesion Diesion 15	5 0	######################################	Rasis Continues of the	Reigi 10	VARSI 2 0	ner nere	Swei Clair	Other of the other o	Precision 0.7290 0.9967	Recall 0.9150 0.9901	F-score 0.8115 0.9934	
Using Chea	ap PO	S tags		21 1 2	Jilon Qi VnQi 7 0 0	pestion with 9 0 1	Diesion Acce 15 0	5 0	######################################	Contraction of the contraction o	Relect Respective to the second secon	2 0 0	narra de la companya	Clarity 0 0	0 Office 1 0 0 0	Precision 0.7290 0.9967 0.9268	Recall 0.9150 0.9901 0.9421	F-score 0.8115 0.9934 0.9344	
Using Chean Statement System Greet Emotion	ap PO	S tags  S tags  S tags  299  0 0	5 5 6 1 0 114 3	21 1 2 80	ndivinal nation of the control of th	gestion 9 0 1	15 0 0	5 0 0	######################################	8 0 2		1 NACE 1 2 0 0 0 0	7, ATE 4 0 0 0 0	Cairles O	0 0 0 0	Precision	Recall 0.9150 0.9901 0.9421 0.7407	F-score 0.8115 0.9934 0.9344 0.8163	
Using Chean Statement System Greet Emotion	ap PO	S tags		21 1 2	Jilon Qi VnQi 7 0 0	9 0 1 0 3	Diesion Acce 15 0	5 0	######################################	8 0 2 0 2	Relect Relect	2 0 0 0	7, AT. 1,	Clarity 0 0	0 Office 1 0 0 0	Precision 0.7290 0.9967 0.9268	Recall 0.9150 0.9901 0.9421	F-score 0.8115 0.9934 0.9344	
Statement System Greet Emotion ynQuestion	ap PO	S tags  S tags  S tags  299  0 0	1 0 114 3 0	21 1 2 80	ndivinal nation of the control of th	gestion 9 0 1	15 0 0 0 0	5 0 0	Empl 11 0 0 2 0 0	8 0 2 0 2		2 0 0 0 1	7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Cairles O	0 0 0 0	Precision	Recall 0.9150 0.9901 0.9421 0.7407	F-score 0.8115 0.9934 0.9344 0.8163	
Statement System Greet Emotion ynQuestion	ap PO  S  S  269  0  3  3  6	S tags  S tags  English  3  299  0  0  0	1 0 114 3 0	21 1 2 80 0	7 0 0 0 38	9 0 1 0 3	15 0 0 0 0	5 0 0	######################################	8 0 2 0 2		2 0 0 0	7, AT. 1,	Cairle Colife	0 0 0 0 0	0.7290 0.9967 0.9268 0.9091 0.7600	Recall 0.9150 0.9901 0.9421 0.7407 0.7451	F-score 0.8115 0.9934 0.9344 0.8163 0.7525	
Statement System Greet Emotion ynQuestion whQuestion	ap PO  5  269  0  3  6  1	S tags  S tags  S tags  3  299  0  0  0	1 0 114 3 0	21 1 2 80 0	7 0 0 0 38 4	9 0 1 0 3 <b>50</b>	15 0 0 0 0	5 0 0 0	Empl 11 0 0 2 0 0	8 0 2 0 2	10 0 0 0	2 0 0 0 1	7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Cair Coair C	0 0 0 0 0 0 0 0	0.7290 0.9967 0.9268 0.9091 0.7600 0.9091	Recall 0.9150 0.9901 0.9421 0.7407 0.7451 0.7937	F-score 0.8115 0.9934 0.9344 0.8163 0.7525 0.8475	
Statement System Greet Emotion ynQuestion whQuestion Accept	ap PO  269 0 3 3 6 1 5	S tags  S tags  3  299  0  0  0  0	1 0 114 3 0 0	21 1 2 80 0 0	7 0 0 0 38 4 1	9 0 1 0 3 <b>50</b> 0	15 0 0 0 0 0 11	5 0 0 0 0	######################################	8 0 2 0 2 0 0 0	10 0 0 0 0 0	VANS 2 0 0 0 0 1 0 0 3	4 0 0 0 0 0 0 0 0 0	Cairles O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7290 0.9967 0.9268 0.9091 0.7600 0.9091 0.4783	Recall 0.9150 0.9901 0.9421 0.7407 0.7451 0.7937 0.4074	F-score 0.8115 0.9934 0.9344 0.8163 0.7525 0.8475 0.4400	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	ap PO  269 0 3 3 6 1 5 1	S tags  S tags  3  299  0  0  0  0  0	1 0 114 3 0 0 0 0 1	21 1 2 80 0 0 0	7 0 0 0 38 4 1	9 0 1 0 3 <b>50</b> 0	15 0 0 0 0 0 11	5 0 0 0 0 0 0	######################################	8 0 2 0 2 0 0	10 0 1 0 0 0 0 0	2 0 0 0 1 0 3 0	1	Cairles 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7290 0.9967 0.9268 0.9091 0.7600 0.9091 0.4783 0.8750	Recall 0.9150 0.9901 0.9421 0.7407 0.7451 0.7937 0.4074 0.7368	F-score 0.8115 0.9934 0.9344 0.8163 0.7525 0.8475 0.4400 0.8000	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	269 0 3 3 6 1 5	S tags 3 299 0 0 0 0 0 0	1 0 114 3 0 0 0 0 1 2	21 1 2 80 0 0 0 0	7 0 0 0 38 4 1	9 0 1 0 0 50 0 0	15 0 0 0 0 11 0 0 0	5 0 0 0 0 0 0 0	11 0 0 0 2 0 0 1 0 5	8 0 2 0 2 0 0 0	10 0 1 0 0 0 0 0 0	2 0 0 0 0 1 0 3 0	1, April 1,	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.9150 0.9901 0.9421 0.7407 0.7451 0.7937 0.4074 0.7368 0.2500	F-score  0.8115 0.9934 0.9344 0.8163 0.7525 0.8475 0.4400 0.8000 0.3125	Overall A 84.10%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	269 0 3 3 6 1 5 1	S tags  3 299 0 0 0 0 0 0 0 0	1 0 114 3 0 0 0 1 1 2 0 0	21 1 2 80 0 0 0 0 4	7 0 0 0 38 4 1 0	9 0 1 0 3 50 0 0	15 0 0 0 0 0 11 0 0 1 1	5 0 0 0 0 0 0 0 0	11 0 0 2 0 0 1 0 5	8 0 2 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 1 0 3 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.9150 0.9901 0.9421 0.7407 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684	F-score  0.8115 0.9934 0.9344 0.8163 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap PO  269 0 3 3 6 1 5 1	S tags  3 299 0 0 0 0 0 0 0 0 0	1 0 114 3 0 0 0 1 1 2 0 0 0	21 1 2 80 0 0 0 0 0 0	7 0 0 0 38 4 1 0 0	9 0 1 0 0 3 50 0 0 0	15 0 0 0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 14 0	11 0 0 0 2 0 0 1 0 5 0 1	8 0 2 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 1 0 3 0 1 1	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7290 0.9967 0.9268 0.9091 0.7600 0.9091 0.4783 0.8750 0.4167 0.7000 0.4000	Recall 0.9150 0.9901 0.9421 0.7407 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684 0.2222	F-score  0.8115 0.9934 0.9344 0.8163 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap PO  269 0 3 3 6 1 5 1 0 1 2	S tags 3 299 0 0 0 0 0 0 0 0 0	1 0 114 3 0 0 0 0 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	21 1 2 80 0 0 0 0 0 0 0	7 0 0 0 38 4 1 0 0	9 0 1 0 0 3 <b>50</b> 0 0 0 0 0	15 0 0 0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0	11 0 0 2 0 0 1 0 5 0	8 0 0 2 0 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 1 0 3 0 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7290 0.9967 0.9268 0.9091 0.7600 0.9091 0.4783 0.8750 0.4167 0.7000 0.4000 0.6000	Recall 0.9150 0.9901 0.9421 0.7407 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684 0.2222 0.2727	F-score  0.8115 0.9934 0.9344 0.8163 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828 0.2857 0.3750	

Figure C.27: Experiment Run 35: Emoticons Assigned "EMO" Tag

Using Actu				<u> </u>		ion	/ion			/.5	/s /		/. /						
	Sig	ternent Sy	GIEN CIE	et Emot	yn di	estru	Mestion Acc	SQ. ANG	Emp	asis Contil	Deleg	y Aris	net narres	lei Other	Clarit	Precision	Recall	F-score	Overall Accuracy
Statement	279	3	7	10	15	3	10	4	8	7	16	4	1	0	6	0.7480	0.8532	0.7971	83.66%
System	3	264	2	0	0	0	0	0	0	0	0	0	0	0	0	0.9814	0.9814	0.9814	
Greet	16	0	131	1	0	0	0	0	0	0	1	0	0	0	0	0.8792	0.9034	0.8912	
Emotion	6	0	1	99	0	0	0	0	1	0	0	0	0	1	1	0.9083	0.8839	0.8959	
ynQuestion	4	2	1	0	44	1	0	0	1	0	0	0	0	0	0	0.8302	0.7097	0.7652	
whQuestion	1	0	1	0	2	44	0	0	1	0	0	1	0	0	0	0.8800	0.8980	0.8889	
Accept	6	0	0	0	1	0	13	0	1	1	1	2	0	0	0	0.5200	0.5200	0.5200	
Bye	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	1.0000	0.7778	0.8750	
Emphasis	3	0	2	2	0	0	0	0	6	0	0	0	0	0	0	0.4615	0.3158	0.3750	
Continuer	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0.6667	0.3077	0.4211	
Reject	3	0	0	0	0	0	0	0	1	0	2	0	1	0	0	0.2857	0.0952	0.1429	
yAnswer	1	0	0	0	0	1	2	0	0	0	0	5	0	0	0	0.5556	0.4167	0.4762	
nAnswer	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0.0000	0.0000	undef	
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1.0000	0.5000	0.6667	
Other	U	U	U	U	U	O	• I				0								
Clarify Using Chea	3 ap PC	0 OS tags	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
Clarify	3 ap PC	0 OS tags	0	0	0	0	0	0	0	0	0	0	0	0		0.0000			
Clarify	ap PC	0 OS tags	0	0	0	0	0	0	0	0	0 Reject	0	0	0		0.0000			Overall A
Clarify	3 ap PC	OS tags	O S GREET GREET	0	0	0	0	0	0	0 Ontif	0	0	O TATES	0		0.0000 Precision 0.7419	0.0000   Recall   0.8440	undef	
Clarify Using Chea	3 ap PC	OS tags	0 S S S S S S S	0 2 Email 11 1	O VION	0 sestion of the original of t	0 livesion pcc pcc pcc pcc pcc pcc pcc pcc pcc pc	O O		0 CORNI	0 Reject	O VARIS	O TARSY	0 Other	Clark 7 0	0.0000 Precision 0.7419 0.9779	0.0000 Recall 0.8440 0.9851	Undef  F-score  0.7897 0.9815	
Clarify Using Chea	3 ap PC	OS tags	O S GREET GREET	0 2 4 10 1 1 1 1 0	0 VION VION 14	0 estion 4 0 0	0 Duesion PCCO	0 8 8 8 0 0 0	0	0 Continue 8 0 0	0  Qelective  15  0  1	O PARS	O CARTON CARTON	Other	Carl	0.0000 Precision 0.7419 0.9779 0.8792	0.0000 Recall 0.8440 0.9851 0.9034	F-score 0.7897 0.9815 0.8912	
Clarify Using Chea Statement System	3 ap PC 276 2 16 3	OS tage	0 5 5 3 131	0 2 Email 11 1	0 14 0 0 1	0 estion of the control of the contr	0  10 0 1 0			0  natis Conii  8  0  0	0 Reight	0 7ANS 5 0 0		O differ	7 0 0	0.0000 Precision 0.7419 0.9779	0.0000 Recall 0.8440 0.9851	Undef  F-score  0.7897 0.9815	
Clarify Using Chea Statement System Greet Emotion	3 ap PC	OS tage	0 5 5 3 131	0 2 4 10 1 1 1 1 0	0 0 10 14 0 0	0 estion 4 0 0	0 Duesion PCCO 10 0 1	0 8 8 8 0 0 0	0	0 Continue 8 0 0	0  Qelective  15  0  1	O PARS	O CARTON CARTON	Other	Carl	0.0000 Precision 0.7419 0.9779 0.8792	0.0000 Recall 0.8440 0.9851 0.9034	F-score 0.7897 0.9815 0.8912	
Clarify Using Chea Statement System Greet	3 ap PC 276 2 16 3	0 0S tags 15 tags 2 tags 2 265 0 0	0 5 5 3 131	0	0 14 0 0 1	0 estion of the control of the contr	0  10 0 1 0	0 4 0 0	0	0  natis Conii  8  0  0	0  Repet	0 7ANS 5 0 0			7 0 0	0.0000 Precision 0.7419 0.9779 0.8792 0.9340	0.0000 Recall 0.8440 0.9851 0.9034 0.8839	F-score 0.7897 0.9815 0.8912 0.9083	
Clarify Using Chea Statement System Greet Emotion ynQuestion	3 ap PC 276 2 16 3 10	0 OS tage 1 2 265 0 0	0 5 5 3 131 1 3	0 2 2 4 1 1 1 1 1 0 99 0	0 0 1 42	0 sesion of o o o	0 Duresion According to the control of the control	0 0 4 0 0 0	0	O COMING O O O O	0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0 VACE 5 0 0 0 0 0	O O O O	Official Control of the control of t	7 0 0 0	0.0000 Precision 0.7419 0.9779 0.8792 0.9340 0.7119	0.0000 Recall 0.8440 0.9851 0.9034 0.8839 0.6774	F-score 0.7897 0.9815 0.8912 0.9083 0.6942	
Clarify Using Chea Statement System Greet Emotion ynQuestion whQuestion	3 ap PC 276 2 16 3 10 0	0 OS tage	0 5 5 3 131 1 3 0 0	0	0 1 42 4	0 estion 0 0 0 0 2 42	0 Description of the control of the	0 0 4 0 0 0 0	0	O COMING O O O O O	0 Qeec 15 0 0 0 0 0	0 VARES 5 0 0 0 0	O O O O O		7 0 0 0 0	0.0000  Precision 0.7419 0.9779 0.8792 0.9340 0.7119 0.8750	0.0000 Recall 0.8440 0.9851 0.9034 0.8839 0.6774 0.8571	F-score 0.7897 0.9815 0.8912 0.9083 0.6942 0.8660	
Clarify Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept	3 ap PC 276 2 16 3 10 0 11	0 0 0 S tags 2 265 0 0 1 1 0 0	0 S S S S S S S S S S S S S S S S S S S	0 11 1 1 0 99 0 0 0 0 0	0 0 1 42 4 1	0	0	0 0 4 0 0 0 0 0	0	0 CONING 8 0 0 0 0 0 0 1	0	0 PARE 5 0 0 0 0 1 2	O O O O O O		7 0 0 0 0 0	0.0000  Precision 0.7419 0.9779 0.8792 0.9340 0.7119 0.8750 0.4138	0.0000 Recall 0.8440 0.9851 0.9034 0.8839 0.6774 0.8571 0.4800	F-score 0.7897 0.9815 0.8912 0.9083 0.6942 0.8660 0.4444	
Clarify Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept Bye	3 ap PC 276 2 16 3 10 0 11 1	0 0 0 S tags 2 265 0 0 1 1 0 0 0	0 5 5 3 131 1 3 0 0	0	0 0 1 42 4 1 0	0 0 0 0 2 42 0 0	0	0 4 0 0 0 0 0	0	0 0 0 0 0 0 1 0 0	0 15 0 1 0 0 0	0 VANG 5 0 0 0 0 1 2	O O O O O O		7 0 0 0 0 0 0	0.0000  Precision 0.7419 0.9779 0.8792 0.9340 0.7119 0.8750 0.4138 0.8750	0.0000 Recall 0.8440 0.9851 0.9034 0.8839 0.6774 0.8571 0.4800 0.7778	F-score 0.7897 0.9815 0.8912 0.9083 0.6942 0.8660 0.4444 0.8235	
Clarify Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	3 ap PC 276 2 16 3 10 0 11 1 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5 5 3 131 1 0 0 0	0	0 0 1 42 4 1 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 10 0 0 12 1 0 0	0 4 0 0 0 0 0 0	0 11 0 0 1 1 0 1 0 5	0 0 0 0 0 0 0 0	0 15 0 1 0 0 0 0	0 NACE   5 0 0 0 0 1 2 0 0	O O O O O O O O		7 0 0 0 0 0 0	0.0000  Precision 0.7419 0.9779 0.8792 0.9340 0.7119 0.8750 0.4138 0.8750 0.5000	0.0000 Recall 0.8440 0.9851 0.9034 0.8839 0.6774 0.8571 0.4800 0.7778 0.2632	F-score 0.7897 0.9815 0.8912 0.9083 0.6942 0.8660 0.4444 0.8235 0.3448	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	3 ap PC 276 2 16 3 10 0 11 1 2 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5 3 131 1 3 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 1 42 4 1 0 0 0 0 0	0	0 0 10 0 0 12 1 0 0 0	0 4 0 0 0 0 0 0 0 14 0	0 11 0 0 1 1 0 5 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 15 0 0 0 0 0 0	0 NACE 5 0 0 0 0 1 2 0 0 0	O O O O O O O O O O O O O O O O O O O		7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0000  Precision 0.7419 0.9779 0.8792 0.9340 0.7119 0.8750 0.4138 0.8750 0.5000 0.6667	0.0000 Recall 0.8440 0.9851 0.9034 0.8839 0.6774 0.8571 0.4800 0.7778 0.2632 0.3077	F-score 0.7897 0.9815 0.8912 0.9083 0.6942 0.8660 0.4444 0.8235 0.3448 0.4211	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	3 ap PC 276 2 16 3 10 0 11 1 2 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5 3 131 1 3 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 42 4 1 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 12 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 4 0 0 0 0 0 0 0 0 0 0 0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 PAGE 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0	0.0000  Precision 0.7419 0.9779 0.8792 0.9340 0.7119 0.8750 0.4138 0.8750 0.5000 0.6667 0.6000	0.0000 Recall 0.8440 0.9851 0.9034 0.8839 0.6774 0.8571 0.4800 0.7778 0.2632 0.3077 0.1429	F-score 0.7897 0.9815 0.8912 0.9083 0.6942 0.8660 0.4444 0.8235 0.3448 0.4211 0.2308	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	3 ap PC 276 2 16 3 10 0 11 1 2 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5 3 131 1 3 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 14 0 0 1 42 4 1 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 12 1 0 0 0 12	0 0 4 0 0 0 0 0 0 0 0 0 0 0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 VACCO 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0000  Precision 0.7419 0.9779 0.8792 0.9340 0.7119 0.8750 0.4138 0.8750 0.5000 0.6667 0.6000 0.6667	0.0000    Recall	F-score 0.7897 0.9815 0.8912 0.9083 0.6942 0.8660 0.4444 0.8235 0.3448 0.4211 0.2308 0.4444	Overall Ad 83.01%

Figure C.28: Experiment Run 40: Emoticons Assigned "EMO" Tag

Using Actua		is tags		ž Emoi	Jon Vilas	estion who	rue stion	et /	Empl	nasis Contif	Deleg Deleg	J. VAUS	nansi nansi	wet Clark	y Othe	Precision	Recall	F-score	Overall Accuracy
Statement	285	4	7	19	8	6	5	4	7	11	11	3	2	1	0	0.7641	0.8559	0.8074	83.77%
System	4	270	0	1	0	0	0	0	0	0	0	0	0	0	0	0.9818	0.9854	0.9836	
Greet	11	0	109	2	0	1	0	0	0	1	0	0	0	0	0	0.8790	0.8790	0.8790	
Emotion	4	0	2	94	0	0	0	0	1	0	0	0	0	0	0	0.9307	0.7899	0.8545	
ynQuestion	10	0	1	0	35	2	0	0	0	0	0	0	0	1	0	0.7143	0.7609	0.7368	
whQuestion	0	0	3	0	2	48	0	0	0	1	0	0	0	0	0	0.8889	0.8421	0.8649	
Accept	8	0	0	0	0	0	14	0	0	0	0	2	1	0	0	0.5600	0.6087	0.5833	
Bye	1	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0.9412	0.7273	0.8205	
Emphasis	2	0	2	2	0	0	0	0	8	1	1	0	0	0	0	0.5000	0.4706	0.4848	
Continuer	4	0	0	0	1	0	1	0	0	4	0	0	0	0	0	0.4000	0.2105	0.2759	
Reject	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0.3333	0.0714	0.1176	
yAnswer	0	0	0	1	0	0	3	0	0	1	0	3	0	0	0	0.3750	0.3750	0.3750	
nAnswer	1	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0.7500	0.6667	0.7059	
Clarify	2	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0.2500	0.3333	0.2857	
Other Using Chea	•			0	0	0	0 ion	1	0	0	0	0	0	0	4	0.8000	1.0000	0.8889	
	p PC	S tags	3																Overall A
Using Chea	p PC		s Serr Gree	at Emoi	Joh Vila	estion	plestion Acc	et eve	Empl	nasis Contil	Qeles Qeles	Arisi VARIS	nars <sup>1</sup>	Claif	A Othe	Precision	Recall	F-score	
Using Chea	p PC خ <sup>رد</sup> <b>291</b>	OS tags	S Green 8	ži Emdi 21	or o	estion who	Diestion Acco	edt ove	Empl 9	nasis Contil	nuet Relect	yArish 4	net ranst	daitt	A Other	Precision 0.7500	Recall 0.8739	<u>F-score</u> 0.8072	
Using Chea	p PC خ <sup>را</sup> <b>291</b>	OS tags	S S S S S S S S S S S S S S S S S S S	Endi Endi 21	ynQi 9 0	pesion 3	Luesion Acco	6 0	Emil 9 0	DOTHIT	Reject 12	VANS	naret PAREST 2 0	Chair	Other 2	Precision 0.7500 0.9926	Recall 0.8739 0.9854	F-score 0.8072 0.9890	
Using Chea Statement System Greet	پر کرد <b>291</b> 2	270 0	8 0 110	21 0 2	yrali 9 0	sesion with a sesion of the se	presion pcc 5	6 0	Emili 9 0 0	Toniii  Coniii  10  0  1	nuet Report	4 0 0	narsing of the control of the contro	Call Call	Office 2 0 0	Precision 0.7500 0.9926 0.9016	Recall 0.8739 0.9854 0.8871	F-score 0.8072 0.9890 0.8943	
Statement System Greet Emotion	291 2 8	25 tags 25 tags 4 270 0	8 0 110	21 0 2 90	9 0 0	sesion 3 0 1 0	pcco 5 0 0	6 0 0	Ernd 9 0 0	Continue 10 0 1 0	nuet Reier 12 0 0 0	VATE: 4 0 0 0	net	Chair	0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563	F-score 0.8072 0.9890 0.8943 0.8451	
Statement System Greet Emotion ynQuestion	500 PC	25 tags 25 tags 270 0 0 0	8 0 110 1	21 0 2 90 0	9 0 0 0 29	3 0 1 0	Luesion PCC PCC PCC PCC PCC PCC PCC PCC PCC PC	6 0 0 0	######################################	10 0 1 0	12 0 0 0	4 0 0 0 0 0 0	CARSTON CARSTO	Cath	0 0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563 0.6304	F-score 0.8072 0.9890 0.8943 0.8451 0.6444	
Statement System Greet Emotion ynQuestion whQuestion	291 2 8 3 11	25 tags 25 tags 270 270 0 0 0	8 0 110 1 1 2	21 0 2 90 0	9 0 0 29 8	3 0 1 0 1 52	presion process of the process of th	6 0 0 0 0 0 0	######################################	10 0 1 1 1 1	12 0 0 0 0	4 0 0 0 0	2 0 0 0 0 0 0		0 0 0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563 0.6304 0.9123	F-score 0.8072 0.9890 0.8943 0.8451 0.6444 0.8595	Overall A 83.30%
Statement System Greet Emotion ynQuestion whQuestion Accept	291 2 8 3 11 1 8	25 tags 25 tags 4 270 0 0 0 0 0	8 0 110 1 2 0	21 0 2 90 0 0 0 0 0	9 0 0 0 29 8	3 0 1 0 1 52	5 0 0 0 0 14	6 0 0 0 0	######################################	10 0 1 1 1 0	12 0 0 0 0 0	VATS  VATS  4 0 0 0 0 0 2	7. R. C. T. R. C. T. R. C. T.	Cait Cait Con 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087	F-score  0.8072 0.9890 0.8943 0.8451 0.6444 0.8595 0.5957	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	291 2 8 3 11 1 8	25 tags  270  0  0  0  0  0  0	8 0 110 1 1 2 0 0 0	21 0 2 90 0 0	9 0 0 0 29 8 0	3 0 1 0 1 52 0	5 0 0 0 0 14	6 0 0 0 0 0	######################################	10 0 1 0 1 1 0 0	12 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0	2 0 0 0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273	F-score  0.8072 0.9890 0.8943 0.8451 0.6444 0.8595 0.5957 0.8421	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	291 291 11 8 0 2	9S tags 9S tags 9S tags 9S tags 90	8 0 110 1 1 2 0 0	21 0 2 90 0 0 0 0	9 0 0 0 29 8 0 0	3 0 1 0 1 52 0 0	5 0 0 0 0 0 14 0	6 0 0 0 0 0 0 0	######################################	10 0 1 1 0 1 1 0 0	12 0 0 0 0 0 0	4 0 0 0 0 0 0 0	2 0 0 0 0 0 0	C 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273 0.4118	F-score  0.8072 0.9890 0.8943 0.8451 0.6444 0.8595 0.5957 0.8421 0.4242	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	p PC	9S tags 9S tags 9S tags 4 270 0 0 0 0 0 0 0 0	8 0 110 1 1 2 0 0 2	21 0 2 90 0 0 0 0	9 0 0 0 29 8 0 0	3 0 1 0 1 52 0 0	5 0 0 0 0 0 14 0	6 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 1 0 1 1 0 0 1 1 4	12 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0	C'aith  C'aith	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105	F-score  0.8072 0.9890 0.8943 0.8451 0.6444 0.8595 0.5957 0.8421 0.4242 0.2759	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	p PCC	25 tags 270 0 0 0 0 0 0 0 0 0 0	8 0 110 1 1 2 0 0	21 0 2 90 0 0 0 0 0	9 0 0 0 29 8 0 0 0	3 0 1 0 1 52 0 0 0	5 0 0 0 0 0 14 0 0	6 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 1	10 0 1 0 1 1 0 0 1 1 4	12 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105 0.0000	F-score  0.8072 0.9890 0.8943 0.8451 0.6444 0.8595 0.5957 0.8421 0.4242 0.2759 undef	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	291 291 2 8 3 11 1 8 0 2 4 2	25 tags 4 270 0 0 0 0 0 0 0 0 0 0 0	8 0 110 1 1 2 0 0 0	21 0 2 90 0 0 0 0 0 0	9 0 0 0 29 8 0 0 0	3 0 1 0 1 52 0 0 0 0	5 0 0 0 0 14 0 0 0 3	6 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0	10 0 1 0 1 1 0 0 1 4 0	12 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105 0.0000 0.2500	F-score  0.8072 0.9890 0.8943 0.8451 0.6444 0.8595 0.5957 0.8421 0.4242 0.2759 undef 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer nAnswer	p PC 291 2 8 3 3 11 1 8 0 0 2 4 4 2 0 0 1 1	0S tags 4 270 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 110 1 1 1 2 0 0 0 0 0 0 0 0 0	21 0 2 90 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 1 52 0 0 0 0	5 0 0 0 0 0 14 0 0 0 3 0	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 1 1 0 0 1 4 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 0 1 0	12 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000000000000000000000000000000000000	Precision  0.7500  0.9926  0.9016  0.9574  0.6591  0.8125  0.5833  1.0000  0.4375  0.4000  0.0000  0.3333  0.7500	Recall 0.8739 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105 0.0000 0.2500 0.6667	F-score  0.8072 0.9890 0.8943 0.8451 0.6444 0.8595 0.5957 0.8421 0.4242 0.2759 undef 0.2857 0.7059	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	291 291 2 8 3 11 1 8 0 2 4 2	25 tags 4 270 0 0 0 0 0 0 0 0 0 0 0	8 0 110 1 1 2 0 0 0	21 0 2 90 0 0 0 0 0 0	9 0 0 0 29 8 0 0 0	3 0 1 0 1 52 0 0 0 0	5 0 0 0 0 14 0 0 0 3	6 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0	10 0 1 0 1 1 0 0 1 4 0	12 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8739 0.9854 0.8871 0.7563 0.6304 0.9123 0.6087 0.7273 0.4118 0.2105 0.0000 0.2500	F-score  0.8072 0.9890 0.8943 0.8451 0.6444 0.8595 0.5957 0.8421 0.4242 0.2759 undef 0.2857	

Figure C.29: Experiment Run 45: Emoticons Assigned "EMO" Tag

Using Actua																			
/	Sid	Jerneni Sys	Jen Ge	at Emot	Jon Mar	estion	Jestion Acce	st ove	Emp	iasis Conti	Reject Pelec	A VARSI	net names	yet Clarift	Other	Precision	Recall	F-score	Overall Accuracy
Statement	266	4	7	13	11	3	6	7	9	11	7	4	4	1	2	0.7493	0.8721	0.8061	83.09%
System	0	238	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0000	0.9835	0.9917	
Greet	10	0	131	0	0	0	0	0	0	1	0	1	0	0	1	0.9097	0.9161	0.9129	
Emotion	3	0	1	92	0	0	1	0	1	0	0	0	1	0	0	0.9293	0.8288	0.8762	
ynQuestion	2	0	1	0	29	6	0	0	1	0	0	0	1	1	0	0.7073	0.6744	0.6905	
whQuestion	1	0	2	0	3	57	0	0	0	0	0	0	0	0	0	0.9048	0.8382	0.8702	
Accept	8	0	0	1	0	0	5	0	0	0	2	4	0	0	0	0.2500	0.3333	0.2857	
Bye	0	0	0	1	0	0	0	10	0	0	0	0	0	0	0	0.9091	0.5556	0.6897	
Emphasis	2	0	1	1	0	0	0	0	9	0	0	0	0	0	0	0.6923	0.4286	0.5294	
Continuer	4	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0.5000	0.2941	0.3704	
Reject	6	0	0	0	0	1	0	1	0	0	3	0	2	0	0	0.2308	0.2143	0.2222	
yAnswer	0	0	0	0	0	1	2	0	1	0	0	3	0	0	0	0.4286	0.2500	0.3158	
nAnswer	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0.6000	0.2727	0.3750	
												_	0	1	0	0.5000	0.3333	0.4000	
Clarify	1	0	0	0	0	0	0	0	0	0	0	0	U		U	0.5000	0.3333	0.4000	
Clarify Other Using Chea	•	0 S tags	0	3	0	0	0	0	0	0 0	0	0	0	0	3	0.3000	0.5000	0.4286	
Other	2 p PC	0 S tags	0	3	0	0	0	0	0	0	0	0	0	0	3	0.3750			
Other Using Chea	p PC	0	o significant	3 Emoli	0 VriQu	0 Restion	0 de sidor	O O	0 Emil	O CONTI	0 Reject	0 VARS	O DANS'	0	3 Other	0.3750 Precision	0.5000 Recall		
Other Using Chea	2 p PC 50 269	OS tags	0 Seri Green	3 Lindi	0 VIOL	0 pestion who	0 lestion peces	0 8	U Emil	0 Ontil	0 Release	0 VAIS	0 viet ransi	0 Clair	Other 3	0.3750 <u>Precision</u> 0.7431	0.5000 Recall 0.8820	0.4286 <u>F-score</u> 0.8066	
Other Using Chea	2 p PC 5 <sup>8</sup> 269	0 OS tags	o S S S S S S S S S S S S S S S S S S S	3 Et   Gradie   16   0	0 VriQu	0 Estion Vino	0 csilor pcc	O O	Control of the contro	0 Continue 8	0 Reject	O VARIO	O DANS'	O Clarif	3 Office 3 0	0.3750  Precision  0.7431  0.9958	0.5000 Recall 0.8820 0.9793	0.4286 F-score 0.8066 0.9875	
Other Using Chea	2 p PC 50 269 0	OS tags	0 Seri Green	3 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 VIOL	0 estion 2 0 1	0 lestion pcc6 5 0 0	0 8		0 Conti	0 Release	0 VANS 4 0 0	0 RAPS	0 Clair	3 0 0 0	0.3750 <u>Precision</u> 0.7431	0.5000 Recall 0.8820	0.4286 <u>F-score</u> 0.8066	
Other Using Chea Statement System	2 p PC 5 <sup>8</sup> 269	0 OS tags OS tags Sterient 5 237	0 5 7 0 132	3 Et   Gradie   16   0	0 0 12 0 0 0	0 Estion Vino	0 O O O O O	0 8 0	Control of the contro	0 Continues 1 1 0	0 Reserved	0 VANS 4 0 0	0 CALLEST	O Caith	3 0 0 0	0.3750  Precision 0.7431 0.9958 0.9362 0.9474	0.5000 Recall 0.8820 0.9793 0.9231 0.8108	0.4286 F-score 0.8066 0.9875	
Other Using Chea Statement System Greet Emotion	2 p PC 50 269 0	0 0S tags 0S tags 5 5 237 0	0 S S Cyc. 7 0 132	3 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 12 0 0	0 estion 2 0 1	0 lestion pcc6 5 0 0	0 8 0 0		0 Conti	0 Qeec	0 VANS 4 0 0	0 RAPS		3 0 0 0	0.3750  Precision 0.7431 0.9958 0.9362	0.5000 Recall 0.8820 0.9793 0.9231	0.4286 F-score 0.8066 0.9875 0.9296	
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Other Using Chea Statement System Greet	2 p PC 269 0 7 2 4	0 OS tags OS tags 5 237 0 0	0 5 7 0 132 0 2	3 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 12 0 0 0 0 24	0 section 2 0 1 0 4	0	0 8 8 0 0 0	0	0 CONTINUE 8 1 1 0 1	O O O O	0 VACE 4 0 0 0	O O O O O O O O O O O O O O O O O O O		3 0 0 0 0	0.3750  Precision 0.7431 0.9958 0.9362 0.9474 0.6486	0.5000 Recall 0.8820 0.9793 0.9231 0.8108 0.5581	0.4286 F-score 0.8066 0.9875 0.9296 0.8738 0.6000	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion	2 p PC 5 0 7 2 4 1	0 OS tags OS tags OS tags ST S	0 SS CYC CYC CYC CYC CYC CYC CYC CYC CYC	3 16 0 0 90 0 0 0	0 0 12 0 0 0 24 7	0 estion 2 0 1 0 4 58	0	0 8 0 0 0 0	0	0 Continue 1 1 0 1 0 0	O C C C C C C C C C C C C C C C C C C C	0 VARES 4 0 0 0 0	O PART O O O O		3 0 0 0 0	0.3750  Precision 0.7431 0.9958 0.9362 0.9474 0.6486 0.8529	0.5000 Recall 0.8820 0.9793 0.9231 0.8108 0.5581 0.8529	0.4286 F-score 0.8066 0.9875 0.9296 0.8738 0.6000 0.8529	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept	2 p PC 269 0 7 2 4 1 9	0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	3 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 12 0 0 0 24 7 0	0	0	0 8 0 0 0 0 0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O CO	0 VARCE 4 0 0 0 0 0 0 5	0 1 0 0 0 0		3 0 0 0 0 0	0.3750  Precision 0.7431 0.9958 0.9362 0.9474 0.6486 0.8529 0.2917	0.5000 Recall 0.8820 0.9793 0.9231 0.8108 0.5581 0.8529 0.4667	0.4286  F-score 0.8066 0.9875 0.9296 0.8738 0.6000 0.8529 0.3590	
Other Using Chea  Statement System Greet Emotion ynQuestion whQuestion Accept Bye	2 p PC 269 0 7 2 4 1 9 0	0 0 0 0 0 0 0 0	0 5 7 0 132 0 2 1 0	3 16 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0	0 8 0 0 0 0 0 0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 2eee 0 0 0 0 0 0	0 4 0 0 0 0 0 0 5	0 4 0 0 0 0 0 0		3 0 0 0 0 0 0	0.3750  Precision 0.7431 0.9958 0.9362 0.9474 0.6486 0.8529 0.2917 1.0000	0.5000 Recall 0.8820 0.9793 0.9231 0.8108 0.5581 0.8529 0.4667 0.5000	0.4286  F-score 0.8066 0.9875 0.9296 0.8738 0.6000 0.8529 0.3590 0.6667	
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Other Using Chea  Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	2 pp PC 269 0 7 2 4 4 1 9 0 0 2 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5 7 0 132 0 2 1 0 0	3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0 5 0 0 1 0 0 7 0	0 8 0 0 0 0 0 0 0 9 0	0 10 0 0 1 1 0 0 0 0 0 8	0 8 1 1 0 0 0 0 0	0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0	0 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		3 0 0 0 0 0 0 0 0	0.3750  Precision 0.7431 0.9958 0.9362 0.9474 0.6486 0.8529 0.2917 1.0000 0.6154 0.5000	0.5000 Recall 0.8820 0.9793 0.9231 0.8108 0.5581 0.8529 0.4667 0.5000 0.3810 0.3529	F-score  0.8066 0.9875 0.9296 0.8738 0.6000 0.8529 0.3590 0.6667 0.4706 0.4138	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	2 pp PC 269 0 7 2 4 1 1 9 0 2 5 3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 SS	3	0 0 12 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0 0 0 0 0 0 0 0 0 0 0	0 8 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 1 1 0 0 0 0 8 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 1 0 0 2 0 0 1 0 0 0 0 0 0	0 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 1 0 0 0 0 0 0 0 0 3	0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	3 3 0 0 0 0 0 0 0 0 0	0.3750  Precision 0.7431 0.9958 0.9362 0.9474 0.6486 0.8529 0.2917 1.0000 0.6154 0.5000 0.2222	0.5000 Recall 0.8820 0.9793 0.9231 0.8108 0.5581 0.8529 0.4667 0.5000 0.3810 0.3529 0.1429	0.4286  F-score 0.8066 0.9875 0.9296 0.8738 0.6000 0.8529 0.3590 0.6667 0.4706 0.4138 0.1739	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	2 pp PC 269 0 0 7 2 4 1 1 9 0 0 2 5 3 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 S S S S S S S S S S S S S S S S S S S	3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 10 10 10 10 10 10 10 10 10 1	0 0 0 0 0 0 0 0 1 0 0 1 0 0 0 1	0 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 10 0 0 1 1 1 0 0 0 0 8 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 PROS 4 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0	0.3750  Precision 0.7431 0.9958 0.9362 0.9474 0.6486 0.8529 0.2917 1.0000 0.6154 0.5000 0.2222 0.4286	0.5000  Recall 0.8820 0.9793 0.9231 0.8108 0.5581 0.8529 0.4667 0.5000 0.3810 0.3529 0.1429 0.2500	F-score  0.8066 0.9875 0.9296 0.8738 0.6000 0.8529 0.3590 0.6667 0.4706 0.4138 0.1739 0.3158	Overall A 82.80%

Figure C.30: Experiment Run 50: Emoticons Assigned "EMO" Tag

Figures C.31 through C.40 show the results of corresponding experiment runs with emoticons segregated into two categories based on type.

Using Actu		S tags		et fins	dion Augustia	estion	Question Acce	igi / bye	Emp	nasis	Reign	J. VAUS	nAns	owed Clarify	Othe	<u> </u>			<u>Overall</u>
	/ 50	/ 5	/ O`	/ W.	/ 41/	111	1 60	/ X /	/ W. /	/ O <sup>0</sup> /	1 00.	/ 4r/	Ur.	/ 00/			<u>Recall</u>	F-score	<u>Accuracy</u>
Statement	301	4	4	11	10	4	6	6	13	11	6	3	2	2	1	0.7839	0.8853	0.8315	85.41%
System	1	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9964	0.9821	0.9892	
Greet	14	0	118	2	0	0	0	1	0	0	0	1	0	0	0	0.8676	0.9593	0.9112	
Emotion	2	0	0	97	0	0	0	0	1	1	0	0	0	0	0	0.9604	0.8584	0.9065	
ynQuestion	4	1	1	0	43	6	0	0	1	0	1	0	0	0	0	0.7544	0.7288	0.7414	
whQuestion	1	0	0	0	6	47	0	0	1	0	0	0	0	0	0	0.8545	0.8246	0.8393	
Accept	6	0	0	1	0	0	12	0	0	0	0	2	0	0	0	0.5714	0.5714	0.5714	
Bye	1	0	0	1	0	0	0	18	1	0	0	0	0	0	0	0.8571	0.7200	0.7826	
Emphasis	2	0	0	1	0	0	1	0	5	0	0	0	0	0	0	0.5556	0.2174	0.3125	
Continuer	1	0	0	0	0	0	0	0	0	4	0	1	0	1	0	0.5714	0.2353	0.3333	
Reject	6	0	0	0	0	0	1	0	1	1	3	0	1	0	0	0.2308	0.3000	0.2609	
yAnswer	0	0	0	0	0	0	1	0	0	0	0	5	0	0	0	0.8333	0.4167	0.5556	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1.0000	0.4000	0.5714	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	0.0000	undef	
O41-																			
Other Using Che	•			0	0	0	0	0	0	0	0	0	0	0	1	0.5000	0.5000	0.5000	
	ap PO	S tags	6																
Using Che	ap PC	S tags	S Gre	et fri	dion Augustia	Jestion wh	Due stor	No. One	End	nasis Cont	Reier	i VARS	n Ans	net Clarity	Othe	Precision	Recall	F-score	
Using Che	ap PC خ <sup>ری</sup> <b>297</b>	S tags	s Jen Ge	, Š. LITT	dion viol	estion who	Question PCG	5 5	Emp 13	nasis Cont	Reject 8	J. VARS	nAns	onet Clarify	Othe 1	Precision 0.7655	Recall 0.8735	<u>F-score</u> 0.8159	
Using Che	ap PO	S tags	S Green Green S O	13 2	did ynd	pestion with 4	Duesitor Profession	5 0	13 0	nasis Conti	Reject Re	Ansi VANSI 3	nant	Daries Chaires	Oinei 1 0	Precision 0.7655 0.9893	Recall 0.8735 0.9893	F-score 0.8159 0.9893	
Using Chean Statement System Greet	ap PO	2S tags 25 tags 3 277 0	5 0 117	13 2 1	Jilon Olivorial Still St	phi 4 0 1	Question 7 7 0	5 0 1	13 0 0	Continue of the continue of th	Reject Re	3 0 0	narra narra 2 0 0	Clarity  Clarity  Clarity  O  O	0 Office   1	Precision  0.7655  0.9893  0.8797	Recall 0.8735 0.9893 0.9512	F-score 0.8159 0.9893 0.9141	
Using Chean Statement System Greet Emotion	ap PO  297  1  13	25 tags 277 0	5 0 117 0	13 2 1 96	14 0 0 0	pestion 4 0 1 0	Diesion 7 0 0 0	5 0 1	13 0 0 1	11 0 0 1	Reight Re	3 0 0	ner nere	Cairle O	0 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496	F-score 0.8159 0.9893 0.9141 0.9057	
Statement System Greet Emotion ynQuestion	ap PC නිර් 297 1 13 1	S tags  Stags  Stags  Stags  Stags  Stags  Stags  Stags  Stags	5 0 117 0	13 2 1 96 0	14 0 0 0 38	4 0 1 0 4	Diesius 7 0 0 0 0 0 0	5 0 1 0	13 0 0 1 1	11 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reference of the control of the cont	3 0 0 0	2 0 0 0	Caird	0 0 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496 0.6441	F-score 0.8159 0.9893 0.9141 0.9057 0.6667	
Statement System Greet Emotion ynQuestion whQuestion	297 1 13 1 11 0	S tags  S tags  3  277  0  0  0	5 0 117 0	13 2 1 96 0	14 0 0 0 38 6	4 0 1 0 4 4 48	Diesion 7 0 0 0	5 0 1 0 0	13 0 0 1 1 0	11 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Reference of the control of the cont	3 0 0 0 0	7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Cairy Contract 0 0 0	0 0 0 0 0 0 0	0.7655 0.9893 0.8797 0.9697 0.6909 0.8889	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421	F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649	
Statement System Greet Emotion ynQuestion whQuestion Accept	297 1 13 1 11 0	S tags  S tags  S tags  3  277  0  0  0  0	5 0 117 0 0 0	13 2 1 96 0 0	14 0 0 0 38 6 0	4 0 1 0 4 48 0	7 0 0 0 0 11	5 0 1 0 0	13 0 0 1 1 0 0	11 0 0 0 0 0 0 0 0	Reference of the control of the cont	3 0 0 0 0 0 0	7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Cairle Cairle O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238	F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	297 1 13 1 11 0 5	25 tags 277 0 0 0 0 0	5 0 117 0 1 0 0	13 2 1 96 0 0 0	14 0 0 0 38 6 0	4 0 1 0 4 48 0 0	7 0 0 0 0 0 11	5 0 1 0 0 0 0	13 0 0 1 1 0 0	11 0 0 1 0 0 0 0 0 0 0 0	8 0 0 0 0 0	3 0 0 0 0 0 4 0	7,RTE 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Caird O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600	F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	297 1 13 1 11 0 5 1	S tags  S tags  3  277  0  0  0  0  0  0  0	5 0 117 0 0 0 0	13 2 1 96 0 0 0 0	14 0 0 0 38 6 0 0	4 0 1 0 4 48 0 0	7 0 0 0 0 0 11 0 1	5 0 1 0 0 0 0 0	13 0 0 1 1 0 0 0 1 5	11 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0	3 3 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 Office	Precision	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174	F-score 0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	297 1 13 11 0 5 1 3	2S tags 3 277 0 0 0 0 0 0 0	5 0 117 0 0 0 0 0	13 2 1 96 0 0 0 0 0	14 0 0 0 38 6 0 0	4 0 0 0 0 0 0 0	7 0 0 0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 1 0 0 0 0 0 0	13 0 0 1 1 0 0 0 1 5	11 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0	3 3 0 0 0 0 0 0 0 0 0 0	7,8,18,18,18,18,18,18,18,18,18,18,18,18,1	0 0 0 0 0 0 1	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500 0.9048 0.5000	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	297 1 13 1 11 0 5 1 3 2	S tags  277  0  0  0  0  0  0  0  0	5 0 117 0 0 0 0 0 0	13 2 1 96 0 0 0 0 0	14 0 0 0 38 6 0 0 0	4 4 48 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 1 0 0 0 0 0 0 0	13 0 0 1 1 0 0 0 1 5 1	11 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 1	0 0 0 0 0 0 0	0 0 0 0 0 0 1 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500 0.9048 0.5000 0.4000 0.2222	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap PC  297  1 13  1 11  0 5 1 3 2 5 0	S tags  277  0  0  0  0  0  0  0  0  0  0	5 0 117 0 0 0 0 0 0	13 2 1 96 0 0 0 0 0 0	14 0 0 0 38 6 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 11 0 0 0 1 1	5 0 1 0 0 0 0 0 0 0 0 0 0	13 0 0 0 1 1 1 0 0 0 5 1 1 1 1 0 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 4 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000 0.3333	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105 0.4706	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap PC  297  1 13 1 11 0 5 1 3 2 5 0 0	S tags  3  277  0  0  0  0  0  0  0  0  0  0	5 0 117 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	13 2 1 96 0 0 0 0 0 0 0 0 0 0	14 0 0 0 38 6 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 11 0 0 0 1 1 1 0 0 0 1 1 1 1	5 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	13 0 0 1 1 0 0 0 1 1 5 1 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 4 0 0 0 4 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7655 0.9893 0.8797 0.9697 0.6909 0.8889 0.5500 0.9048 0.5000 0.4000 0.2222 0.8000 0.7500	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000 0.3333 0.6000	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap PC  297  1 13  1 11  0 5 1 3 2 5 0	S tags  277  0  0  0  0  0  0  0  0  0  0	5 0 117 0 0 0 0 0 0	13 2 1 96 0 0 0 0 0 0	14 0 0 0 38 6 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0 0 11 0 0 0 1 1	5 0 1 0 0 0 0 0 0 0 0 0 0	13 0 0 0 1 1 1 0 0 0 5 1 1 1 1 0 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 4 0 0 0 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8735 0.9893 0.9512 0.8496 0.6441 0.8421 0.5238 0.7600 0.2174 0.2353 0.2000 0.3333	F-score  0.8159 0.9893 0.9141 0.9057 0.6667 0.8649 0.5366 0.8261 0.3030 0.2963 0.2105 0.4706	<u>Overall A</u> 84.59%

Figure C.31: Experiment Run 5: Emoticons Assigned "EMO" or "EMO2" Tags

Using Actu	ıal POS tag	s																
	Statement	stern Gre	get fine	dion vno	Jestion Mr.	Die stion	igi /ohe/	Emp	asis Conti	Refer	A VANSI	net name	Olarify Clarify	Oth	Precision	Recall	F-score	<u>Overall</u> Accurac
Statement	<b>282</b> 3	5	15	11	6	9	4	10	7	14	8	3	6	0	0.7363	0.8650	0.7955	83.81%
System	0 249	1	0	0	0	0	0	0	0	0	0	0	0	0	0.9960	0.9881	0.9920	
Greet	12 0		2	0	1	0	0	0	1	0	0	0	0	0	0.8947	0.9444	0.9189	
Emotion	3 0	1	93	0	0	0	0	0	0	0	0	0	0	0	0.9588	0.8378	0.8942	
ynQuestion	6 0	1	0	36	4	0	0	0	0	0	1	0	0	0	0.7500	0.7059	0.7273	
whQuestion	3 0	0	1	1	38	0	0	0	0	0	0	0	0	0	0.8837	0.7755	0.8261	
Accept	9 0	0	0	0	0	17	0	0	0	0	3	0	0	0	0.5862	0.6296	0.6071	
Bye	0 0	0	0	0	0	0	12	0	0	0	0	0	0	0	1.0000	0.7500	0.8571	
Emphasis	4 0		0	2	0	0	0	5	0	0	1	0	0	0	0.4167	0.3125	0.3571	
Continuer	6 0	-	0	0	0	1	0	0	3	0	0	0	0	0	0.3000	0.2727	0.2857	
Reject	1 0		0	1	0	0	0	1	0	4	0	3	0	0	0.4000	0.2222	0.2857	
yAnswer	0 0		0	0	0	0	0	0	0	0	4	0	0	0	1.0000	0.2353	0.3810	
nAnswer	0 0	-	0	0	0	0	0	0	0	0	0	2	0	0	1.0000	0.2500	0.4000	
Clarify	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	0.0000	undef	
,		-																
Other Using Chea	0 0 ap POS tag	0 s	0	0	0	0	0	0	0	0	0	0	0	4	1.0000	1.0000	1.0000	
Other	0 0 ap POS tag	0 s	0	0	0	0												
Other Using Chea	0 0 ap POS tag	o s	o contract of the contract of	O Dilor VIO	o destion	O Diesion	Bye Bye	Emp	Coni	De les	Ansi VARSI	nAne nAne	wei Clair	Oth	Precision	Recall	F-score	
Other Using Chea	0 0 ap POS tag Statement Statement 279 4	s serri	0 5et 4711 15	0 diton violation 11	0 destion	O Duestion	\$\frac{1}{8}\frac{1}{8	Emil 13	Rasis Conti	Reject 12	y Ansi	net nene	oracin's Gain's	Other 1	Precision 0.7342	Recall 0.8558	<u>F-score</u> 0.7904	
Other Using Chea	0 0 ap POS tag cycle (cycle) 279 4 2 248	s s 5	0 15 0	o dion of the other of the othe	0 desilon	0 Direction 8 0	4 0	######################################	Zonii Conii 7	Reign Park	yAnsi yAnsi 9	narri 2 0	Swet Clarify		Precision 0.7342 0.9880	Recall 0.8558 0.9841	F-score 0.7904 0.9861	
Other Using Chea Statement System Greet	0 0 ap POS tag space of the color of the col	0 s 5 5 1 136	0 15 0 2		0 lestion 4 0 0	O Duesion Received 8 0 1	4 0 0	######################################	Continue of the continue of th	Qeler 12 0	9 0 0	nare nare o	Clarify 6 0		Precision 0.7342 0.9880 0.9067	Recall 0.8558 0.9841 0.9444	F-score 0.7904 0.9861 0.9252	
Other Using Chea Statement System Greet Emotion	0 0 ap POS tag sparation 279 4 2 248 10 0 3 0	0 s s sen c s s s s s s s s s s s s s s s s s s	0 15 0 2 92		0 lestion 4 0 0 0	O DIESTON ROLL ROLL ROLL ROLL ROLL ROLL ROLL RO	4 0 0	######################################	7 0 1 0	Reignuet 12 0 0	9 0 0	nanta 2 0 0	Cairle O		Precision 0.7342 0.9880 0.9067 0.9485	Recall 0.8558 0.9841 0.9444 0.8364	F-score 0.7904 0.9861 0.9252 0.8889	
Other Using Chea Statement System Greet Emotion ynQuestion	0 0 ap POS tag cyalength 279 4 2 248 10 0 3 0 6 0	5 1 136 1	0 15 0 2 92 0	0 0 11 0 0 0 35	0 0 0 0 2	Diesion	4 0 0 0	13 0 0 0	7 O 1 O O	QEEE 0 0 0 0 0	9 0 0 0	2 0 0 0	Calif		Precision 0.7342 0.9880 0.9067 0.9485 0.7778	Recall 0.8558 0.9841 0.9444 0.8364 0.6863	F-score 0.7904 0.9861 0.9252 0.8889 0.7292	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion	0 0 ap POS tag  279 4 2 248 10 0 3 0 6 0 4 0	5 1 136 1 0	0 15 0 2 92 0	0 0 11 0 0 0 0 35 3	0 0 0 0 0 0 2 43	O Diesitor Receipt Rec	4 0 0 0 0	13 0 0 0 0	7 0 1 0 0 0 0	12 0 0 0 0	9 0 0 0 1	7 name 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Calif		Precision 0.7342 0.9880 0.9067 0.9485 0.7778 0.8431	Recall 0.8558 0.9841 0.9444 0.8364 0.6863 0.8776	F-score 0.7904 0.9861 0.9252 0.8889 0.7292 0.8600	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept	0 0 0 ap POS tag  279 4 2 248 10 0 3 0 6 0 4 0 9 0	5 1 136 1 0 0	0 15 0 2 92 0 1 0	0 0 11 0 0 0 0 35 3 0	0 (ESION 4 0 0 0 0 2 43 0	0 Desiration   8	4 0 0 0 0 0	######################################	7 0 1 0 0 0	12 0 0 0 0	9 0 0 0 1 0	7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7342 0.9880 0.9067 0.9485 0.7778 0.8431 0.5926	Recall 0.8558 0.9841 0.9444 0.8364 0.6863 0.8776 0.5926	F-score 0.7904 0.9861 0.9252 0.8889 0.7292 0.8600 0.5926	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept Bye	0 0 0 ap POS tag  279 4 2 248 10 0 3 0 6 0 4 0 9 0 1 0	5 1 136 1 0 0	0 15 0 2 92 0 1 0 0	0 0 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 10 10 10 10 10 10 10 10 10 1	0  Dissilor  Dissilor  Pocces  8  0  1  0  0  16	4 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 1 0 0 0	12 0 0 0 0 0 0	9 0 0 0 1 0 2	7, R. T. 2 0 0 0 0 0 0	0 0 0 0 0 0		Precision 0.7342 0.9880 0.9067 0.9485 0.7778 0.8431 0.5926 0.9231	Recall 0.8558 0.9841 0.9444 0.8364 0.6863 0.8776 0.5926 0.7500	F-score 0.7904 0.9861 0.9252 0.8889 0.7292 0.8600 0.5926 0.8276	
Other Using Chea Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	0 0 0 ap POS tag  279 4 2 248 10 0 3 0 6 0 4 0 9 0 1 0 4 0	5 1 136 1 0 0	0 15 0 2 92 0 1 0 0	0 0 0 0 0 0 0 0 0 0 0 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0  Dission  Dission  Dission  Receipt  8  0  1  0  0  16  0  0	4 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0	7 0 1 0 0 0 0	12 0 0 0 0 0 0	9 9 0 0 0 1 0 2 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7342 0.9880 0.9067 0.9485 0.7778 0.8431 0.5926 0.9231 0.2500	Recall 0.8558 0.9841 0.9444 0.8364 0.6863 0.8776 0.5926 0.7500 0.1250	F-score 0.7904 0.9861 0.9252 0.8889 0.7292 0.8600 0.5926 0.8276 0.1667	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	0 0 0 ap POS tag  279 4 2 248 10 0 3 0 6 0 4 0 9 0 1 0 4 0 6 0	5 1 136 1 0 0 0	0 15 0 2 92 0 1 0 0 0	0 0 11 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0	0 	0  Dissilor  Dissilor  Rece  8  0  1  0  0  16  0  1	4 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0	7 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 1	7, A. M. 2 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7342 0.9880 0.9067 0.9485 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000	Recall  0.8558 0.9841 0.9444 0.8364 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727	F-score 0.7904 0.9861 0.9252 0.8889 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	0 0 0 ap POS tag  279 4 2 248 10 0 3 0 6 0 4 0 9 0 1 0 4 0 6 0 1 0	5 1 136 1 0 0 0 0	0 15 0 2 92 0 1 0 0 0 0	0 0 1 1	0 	0  Dissilor  Pecce  8  0  1  0  0  16  0  1	4 0 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0	7 0 1 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 0	0 0 0 0 0 0 0 0 3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7342 0.9880 0.9067 0.9485 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000 0.4545	Recall  0.8558 0.9841 0.9444 0.8364 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778	F-score 0.7904 0.9861 0.9252 0.8889 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	0 0 0 ap POS tag  279 4 2 248 10 0 3 0 6 0 4 0 9 0 1 0 4 0 6 0 1 0 0 0	5 1 136 1 1 0 0 0 0 0	0 15 0 2 92 0 1 0 0 0 0	0 0 1 1 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 Dissilor Dissilor No. 10 0 0 0 16 0 0 1	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 0 1	2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7342 0.9880 0.9067 0.9485 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000 0.4545 0.8000	Recall  0.8558 0.9841 0.9444 0.8364 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778 0.2353	F-score 0.7904 0.9861 0.9252 0.8889 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448 0.3636	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer nAnswer	0 0 0 ap POS tag  279 4 2 248 10 0 3 0 6 0 4 0 9 0 1 0 6 0 0 1 0 0 0 1 0 0 0 1 0 0 0 0 0	5 1 136 1 0 0 0 0 0 0	0 15 0 2 92 0 1 0 0 0 0 0	0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0 0 0	7 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 0 1 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7342 0.9880 0.9067 0.9485 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000 0.4545 0.8000 0.6000	Recall  0.8558 0.9841 0.9444 0.8364 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778 0.2353 0.3750	F-score 0.7904 0.9861 0.9252 0.8889 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448 0.3636 0.4615	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	0 0 0 ap POS tag  279 4 2 248 10 0 3 0 6 0 4 0 9 0 1 0 4 0 6 0 1 0 0 0	5 1 136 1 0 0 0 0 0 0 0	0 15 0 2 92 0 1 0 0 0 0	0 0 1 1 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 Dissilor Dissilor No. 10 0 0 0 16 0 0 1	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	13 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 0 0 0 0 0 0 0 0 0	9 0 0 0 1 0 2 0 0 1	2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7342 0.9880 0.9067 0.9485 0.7778 0.8431 0.5926 0.9231 0.2500 0.3000 0.4545 0.8000	Recall  0.8558 0.9841 0.9444 0.8364 0.6863 0.8776 0.5926 0.7500 0.1250 0.2727 0.2778 0.2353	F-score 0.7904 0.9861 0.9252 0.8889 0.7292 0.8600 0.5926 0.8276 0.1667 0.2857 0.3448 0.3636	Overall A 83.33%

Figure C.32: Experiment Run 10: Emoticons Assigned "EMO" or "EMO2" Tags

Using Actu		S tags		et fins	dion Augustia	estion	Que stion	gi bye	Emp	lasis (	Reject Property	y Arisi	net name	ower Clarity	Other				<u>Overall</u>
	/50			/ 4	<u> </u>	111	/ P <sup>Q</sup> /	/  \ \	<u> </u>	/ O <sup>2</sup> /	/ 20/	/ 4r/	14	/ 0 /			<u>Recall</u>	F-score	Accuracy
Statement	265	6	8	21	11	5	5	4	8	9	11	3	4	0	0	0.7361	0.8833	0.8030	83.58%
System	1	235	2	0	0	0	0	0	0	0	0	0	0	0	0	0.9874	0.9711	0.9792	
Greet	8	0	119	1	1	0	0	2	0	0	0	0	0	0	0	0.9084	0.9084	0.9084	
Emotion	3	0	0	90	0	0	1	0	0	0	0	0	0	0	0	0.9574	0.7826	0.8612	
ynQuestion	9	1	1	0	42	3	0	0	0	0	0	0	0	0	0	0.7500	0.6885	0.7179	
whQuestion	2	0	0	1	5	40	0	0	1	0	0	0	0	0	0	0.8163	0.8333	0.8247	
Accept	6	0	0	1	0	0	6	0	0	1	1	0	0	0	0	0.4000	0.3750	0.3871	
Bye	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	1.0000	0.6667	0.8000	
Emphasis	2	0	1	1	0	0	0	0	9	0	0	0	0	0	0	0.6923	0.4500	0.5455	
Continuer	2	0	0	0	2	0	0	0	1	6	0	0	0	0	0	0.5455	0.3529	0.4286	
Reject	1	0	0	0	0	0	1	0	1	0	5	0	1	0	0	0.5556	0.2778	0.3704	
yAnswer	0	0	0	0	0	0	3	0	0	1	0	6	0	0	0	0.6000	0.6667	0.6316	
nAnswer	1	0	0	0	0	0	0	0	0	0	1	0	4	0	0	0.6667	0.4444	0.5333	
Clarify	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	undef	undef	undef	
Other																			
Using Che	•			0	0	0	0	0	0	0	0	0	0	0	1	1.0000	1.0000	1.0000	
	ар РО	S tags	;																
Using Che	ap PO	S tags	gen Gre	et frus	Jilon Villa	of who	The story	No.	Empl	lasis Con	Reigi Reigi	VARS	nAns.	Julei Clarifu	Other	Precision	Recall	F-score	
Using Che	ap PO දුර් <b>256</b>	S tags	gern Gie	22 Em	Jilon Andi	section who	Question Acce	5 5	Emili 11	lasis Conti	Reiect Pe	yArisi 4	nAns	o Caite	Other	Precision 0.7211	Recall 0.8533	<u>F-score</u> 0.7817	
Using Che	ap PO حراق <b>256</b>	S tags	gen Gie	22 0	Jilon Olivano 16	estion with 6	Diesion A 0	5 0	######################################	g 0	Reigi 9	VARSI VARSI 4	ner nere	Swei Caith	Other O	Precision 0.7211 0.9835	Recall 0.8533 0.9835	F-score 0.7817 0.9835	
Using Chean Statement System Greet	ap PO	S tags  S tags  4  238	5 2 122	22 0 0	Jilon Qi VnQi 16 0 1	Sestion 6 0	Question Acce	5 0 1		g 0	geiec	yAnsi 4 0 0	narra de la companya	O Caith	Office 0 0	Precision	Recall 0.8533 0.9835 0.9313	F-score 0.7817 0.9835 0.9242	
Statement System Greet Emotion	ap PO  256 2 9 2	S tags    S tags	5 2 122 0	22 0 0 90	16 0 1 0	estion 6 0 0	Diesion Design	5 0 1	######################################	9 0 0	Qeles 9	4 0 0 0	7, ATE 4 0 0 0 0	O O O	0 0 0 0 0	Precision	Recall 0.8533 0.9835 0.9313 0.7826	F-score 0.7817 0.9835 0.9242 0.8654	
Statement System Greet Emotion ynQuestion	ap PO  S  256  2  9  2  12	S tags  S tags  English  4  238  0  0	5 2 122 0	22 0 0 90	Jilon Qi VnQi 16 0 1	with 6 0 0 0 1	Design De	5 0 1 0	######################################	g O O O O	9 0 0 0	4 0 0 0	7, AT. 1,	Caffel Control of O	0 Office	Precision	Recall 0.8533 0.9835 0.9313 0.7826 0.5902	F-score 0.7817 0.9835 0.9242 0.8654 0.6486	
Statement System Greet Emotion ynQuestion whQuestion	ap PO  256 2 9 2 12 3	S tags  S tags  4  238  0  0  0	5 2 122 0 1	22 0 0 90 0	16 0 1 0 36	6 0 0 1 40	Design Page 1	5 0 1 0 0	######################################	9 0 0 0	geeen o	4 0 0 0 0 0 1	7, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	Calify O O O O	0 0 0 0 0 0 0 0 0	0.7211 0.9835 0.9173 0.9677 0.7200 0.7547	Recall 0.8533 0.9835 0.9313 0.7826 0.5902 0.8333	F-score 0.7817 0.9835 0.9242 0.8654 0.6486 0.7921	
Statement System Greet Emotion ynQuestion whQuestion Accept	ap PO  256 2 9 2 12 3 7	S tags  4  238  0  0  0  0	5 2 122 0 1 0 0	22 0 0 90 0 1	16 0 1 0 36 7 0	6 0 0 1 40	Diesion 4 0 0 0 1 0 0 7	5 0 1 0 0	######################################	9 0 0 0 0 0	geech	VANCE   VANCE	4 0 0 0 0 0 0 0 0 0	O O O O O	0 Office   0	Precision	Recall 0.8533 0.9835 0.9313 0.7826 0.5902 0.8333 0.4375	F-score 0.7817 0.9835 0.9242 0.8654 0.6486 0.7921 0.4118	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	ap PO  256 2 9 2 12 3 7 0	S tags  S tags  4  238  0  0  0  0  0	5 2 122 0 1 0 0	22 0 0 90 90 1 0	16 0 1 0 36 7 0	6 0 0 1 40 0	Design 4 0 0 0 0 0 7 0 0	5 0 1 0 0 0 0	######################################	9 0 0 0 0 0 0	9 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0	1	O O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8533 0.9835 0.9313 0.7826 0.5902 0.8333 0.4375 0.6667	F-score 0.7817 0.9835 0.9242 0.8654 0.6486 0.7921 0.4118 0.8000	<u>Overall A</u> 82.39%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	ap PO  256 2 9 2 12 3 7 0 2	S tags  S tags  4  238  0  0  0  0  0  0	5 2 122 0 1 0 0 0	22 0 0 90 0 1 0 0	16 0 1 0 36 7 0 0	6 0 0 0 1 40 0 0	Diesion 1	5 0 1 0 0 0 0	11 0 0 0 0 0 1 0 0 0 7	9 0 0 0 0 0 0	9 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0	1, April 1,	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7211 0.9835 0.9173 0.9677 0.7200 0.7547 0.3889 1.0000 0.6364	Recall 0.8533 0.9835 0.9313 0.7826 0.5902 0.8333 0.4375 0.6667 0.3500	F-score 0.7817 0.9835 0.9242 0.8654 0.6486 0.7921 0.4118 0.8000 0.4516	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	ap PO  256 2 9 2 12 3 7 0 2 4	S tags  4  238  0  0  0  0  0  0  0  0	5 2 122 0 0 0 0 0 0	22 0 0 90 0 1 0 0 0	16 0 1 0 36 7 0 0	## 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1	5 0 1 0 0 0 0 0 12	11 0 0 0 0 1 0 0 0 7 0 0	9 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0	4 0 0 0 0 1 2 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7211 0.9835 0.9173 0.9677 0.7200 0.7547 0.3889 1.0000 0.6364 0.5455	Recall 0.8533 0.9835 0.9313 0.7826 0.5902 0.8333 0.4375 0.6667 0.3500 0.3529	F-score 0.7817 0.9835 0.9242 0.8654 0.6486 0.7921 0.4118 0.8000 0.4516 0.4286	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap PO  256 2 9 2 12 3 7 0 2 4 2	S tags 4 238 0 0 0 0 0 0 0 0	5 2 122 0 1 0 0 0 0 0	22 0 0 90 0 1 0 0 0	16 0 1 0 36 7 0 0 0	6 0 0 0 1 1 40 0 0 0 0 1 1	Diesion 1	5 0 1 0 0 0 0 12 0	11 0 0 0 0 1 0 0 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 0 1 0 0 0 1 0	9 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 7	4 0 0 0 0 1 2 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7211 0.9835 0.9173 0.9677 0.7200 0.7547 0.3889 1.0000 0.6364 0.5455 0.5385	Recall 0.8533 0.9835 0.9313 0.7826 0.5902 0.8333 0.4375 0.6667 0.3500 0.3529 0.3889	F-score  0.7817 0.9835 0.9242 0.8654 0.6486 0.7921 0.4118 0.8000 0.4516 0.4286 0.4516	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap PO  256 2 9 2 12 3 7 0 2 4 2	S tags 4 238 0 0 0 0 0 0 0 0 0 0	55 22 1222 0 0 0 0 0 0 0 0 0 0	22 0 0 90 0 1 0 0 0 0	16 0 1 0 36 7 0 0 0 0	6 0 0 0 1 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1	5 0 1 0 0 0 0 12 0 0	11 0 0 0 0 0 1 0 0 7 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7211 0.9835 0.9173 0.9677 0.7200 0.7547 0.3889 1.0000 0.6364 0.5455 0.5385 0.3333	Recall	F-score  0.7817 0.9835 0.9242 0.8654 0.6486 0.7921 0.4118 0.8000 0.4516 0.4286 0.4516 0.2667	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap PO  256 2 9 2 12 3 7 0 2 4 2 0 1	S tags 4 238 0 0 0 0 0 0 0 0 0 0 0 0	5 2 122 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	22 0 0 90 0 1 0 0 0 0 0	16 0 1 0 36 7 0 0 0 0 0	6 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	1	5 0 1 0 0 0 0 0 0 0 0 0 0	11 0 0 0 0 0 1 0 0 0 0 1 0 0	9 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7211 0.9835 0.9173 0.9677 0.7200 0.7547 0.3889 1.0000 0.6364 0.5455 0.5385 0.3333 0.6667	Recall	F-score  0.7817 0.9835 0.9242 0.8654 0.6486 0.7921 0.4118 0.8000 0.4516 0.4286 0.4516	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap PO  256 2 9 2 12 3 7 0 2 4 2	S tags 4 238 0 0 0 0 0 0 0 0 0 0	55 22 1222 0 0 0 0 0 0 0 0 0 0	22 0 0 90 0 1 0 0 0 0	16 0 1 0 36 7 0 0 0 0	6 0 0 0 1 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1	5 0 1 0 0 0 0 12 0 0	11 0 0 0 0 0 1 0 0 7 0	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7211 0.9835 0.9173 0.9677 0.7200 0.7547 0.3889 1.0000 0.6364 0.5455 0.5385 0.3333	Recall	F-score  0.7817 0.9835 0.9242 0.8654 0.6486 0.7921 0.4118 0.8000 0.4516 0.4286 0.4516 0.2667	

Figure C.33: Experiment Run 15: Emoticons Assigned "EMO" or "EMO2" Tags

Using Actu	/		eet un	didn ynd	estion	Mestion	it bye	Emp	nasis Conti	Reject Property	yAns	nAns.	owet Clarity	Othe	Proviolen	Doodl	F 22242	Overall
- · · · · · · · · · · · · · · · · · · ·	/ 9/	5,	/ 🗸	<u>/ */</u>	72	/ r/	<u> </u>	12	0/	~ /	4.	<u> </u>	0/			Recall	F-score	Accuracy
Statement	282 2 25	4 8		10	4	8	5	13	9	6	2	0	0	0	0.7622	0.8952	0.8234	84.71%
System Greet	2 <b>25</b>	0 131	-	0	0	0	1	0	1	1	0	0	0	0	0.9884 0.8733	0.9846 0.8973	0.9865 0.8851	
Emotion	1	0 131	_	0	0	2	0	0	0	0	0	0	0	0	0.9529	0.8973	0.8526	
ynQuestion	2	0 2	_	37	1	0	0	1	0	0	0	0	0	0	0.8605	0.7714	0.7957	
whQuestion	2	0 0		3	38	0	0	0	0	0	0	0	0	0	0.8837	0.8636	0.7337	
Accept	5	0 0		0	0	15	0	1	0	3	0	0	0	0	0.6000	0.5556	0.5769	
Bye	1	0 1		0	0	1	13	0	0	0	0	0	0	0	0.8125	0.6842	0.7429	
Emphasis	2	0 2		0	0	0	0	11	0	1	0	0	0	0	0.6471	0.4074	0.5000	
Continuer	1	0 0		0	0	0	0	0	4	0	1	0	0	0	0.6667	0.2667	0.3810	
Reject	4	0 0		0	0	0	0	1	0	2	0	0	0	0	0.2857	0.1333	0.1818	
yAnswer	1	0 0	1	0	0	1	0	0	0	0	6	0	0	0	0.6667	0.6000	0.6316	
nAnswer	0	0 0	0	0	0	0	0	0	1	2	0	1	0	0	0.2500	0.5000	0.3333	
Clarify	1	0 0	0	0	0	0	0	0	0	0	1	0	0	0	0.0000	undef	undef	
Other Using Chea				0	0	0	0	0	0	0	0	0	0	4	1.0000	0.8000	0.8889	
L	ap POS ta	ags							l.									Outowall A
Using Chea	ap POS ta	ags	et Li	didn ynd	estion	The story	No.	Emp	Conti	nuet Release	VANS	nan	net Clarity	Othe	Precision	Recall	F-score	
Using Chea	ap POS ta	ags  Ags  Ags  Ags  Ags  Ags  Ags  Ags	21	dion via	Jestion who	The stion by the sting of the s	RT A	Lings 15	Conti	nuet Relect	yAns y	nAns	nei Clatifu	Othe 3	<u>Precision</u> 0.7459	Recall 0.8762	<u>F-score</u> 0.8058	
Using Chea	ap POS to	ags  A  A  A  B  A  B  A  B  A  B  A  B  A  B  B	21 0	dion Maion No.	estion white	Augstion Proces	4 0	Empl 15 0	Conti 10 0	River Reserve	VANS	ner nere	O O	Other 3	Precision 0.7459 0.9884	Recall 0.8762 0.9846	F-score 0.8058 0.9865	
Using Chea	ap POS to 558 ETRE 55	ags  5 5 6 6 1  0 131	21 0 2	olion violi	Jestion 4 0 1	The stion by the sting of the s	4 0 0	15 0 0	Continue 10 0 1	Description of the second seco	3 0 0	nare nare of the name of the n	O O	3 0 0	Precision 0.7459 0.9884 0.9161	Recall 0.8762 0.9846 0.8973	F-score 0.8058 0.9865 0.9066	
Using Chea  Statement System Greet Emotion	ap POS to 5 to	ags  4 8 66 1 0 131	21 0 2 79	obitor NO.	estion 4 0 1 0	Diesion Description of the control o	4 0 0 0	15 0 0	10 0 1	Tuet Qele 5	3 0 0		O O O	3 0 0	Precision	Recall 0.8762 0.9846 0.8973 0.7524	F-score 0.8058 0.9865 0.9066 0.8404	
Statement System Greet Emotion ynQuestion	ap POS to State Research	ags  4 8 66 1 0 131 0 2 0 1	21 0 2 79 0	olitor photos of the control of the	Bestion 4 0 1 0 1	Necesial Necesia	\$\frac{1}{2} \\ \frac{1}{2} \\ \frac	######################################	10 0 1 0 0 0	S O 1 O O	3 0 0 0	narei 1 0 0 0	O O O O	3 0 0 0	0.7459 0.9884 0.9161 0.9518 0.7674	Recall 0.8762 0.9846 0.8973 0.7524 0.6600	F-score 0.8058 0.9865 0.9066 0.8404 0.7097	
Statement System Greet Emotion ynQuestion whQuestion	ap POS to State Research	ags  4 8 66 1 0 131 0 2 0 1 0 0	21 0 2 79 0	obitor NO.	4 0 1 0 1 37	Duesion Receipt Receip	4 0 0 0	######################################	10 0 1 0 0	S O O O O	3 0 0 0 0	1 0 0 0 0 0 0 0	O O O O O	3 0 0 0 0	0.7459 0.9884 0.9161 0.9518 0.7674 0.7400	Recall 0.8762 0.9846 0.8973 0.7524 0.6600 0.8409	F-score 0.8058 0.9865 0.9066 0.8404 0.7097 0.7872	
Statement System Greet Emotion ynQuestion	ap POS to State Research	ags  4 8 66 1 0 131 0 2 0 1	21 0 2 79 0	8 0 0 0 0 33 9	Bestion 4 0 1 0 1	Necesial Necesia	4 0 0 0 0 0	######################################	10 0 1 0 0 0	S O 1 O O	3 0 0 0	narei 1 0 0 0	O O O O	3 0 0 0	0.7459 0.9884 0.9161 0.9518 0.7674	Recall 0.8762 0.9846 0.8973 0.7524 0.6600	F-score 0.8058 0.9865 0.9066 0.8404 0.7097	
Statement System Greet Emotion ynQuestion whQuestion Accept	ap POS to State TRE 2 25 7 1 6 3 7	ags 4 8 66 1 0 131 0 2 0 1 0 0 0 0	21 0 2 79 0 1 0 0	8 0 0 0 0 33 9 0	4 0 1 0 1 37 0	8 0 0 1 0 0 17	4 0 0 0 0	######################################	10 0 1 0 0 0 0	5 0 0 0 0 3	3 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0	O O O O O	3 0 0 0 1 0	0.7459 0.9884 0.9161 0.9518 0.7674 0.7400 0.5862	Recall 0.8762 0.9846 0.8973 0.7524 0.6600 0.8409 0.6296	F-score 0.8058 0.9865 0.9066 0.8404 0.7097 0.7872 0.6071	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	ap POS to State TRE 276 2 25 7 1 6 3 7 0	ags  4 8 66 1 0 131 0 2 0 1 0 0 0 0 0 0 0 1	21 0 2 79 0 1 0 0	8 0 0 0 33 9 0 0	4 0 1 0 1 37 0 0	8 0 0 1 1 0 0 17 0	\$\frac{1}{2}\cdot \frac{1}{2}\cdot \frac	######################################	10 0 0 0 0 0 0	5 0 1 0 0 0	3 0 0 0 0 0 1	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	O O O O O O	3 0 0 0 0 0 0 0	0.7459 0.9884 0.9161 0.9518 0.7674 0.7400 0.5862 0.9375	Recall 0.8762 0.9846 0.8973 0.7524 0.6600 0.8409 0.6296 0.7895	F-score  0.8058 0.9865 0.9066 0.8404 0.7097 0.7872 0.6071 0.8571	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	ap POS to State TRE 2 25 7 1 6 3 7 0 3	ags  4 8  66 1  0 131  0 2  0 1  0 0  0 0  0 0  1 0 0  0 2	21 0 2 79 0 1 0 0 0	8 0 0 0 33 9 0	4 0 1 0 1 37 0 0	# RCC   NEST   N	4 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9	10 0 0 0 0 0 0 0	5 0 1 0 0 0 0	3 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0	0.7459 0.9884 0.9161 0.9518 0.7674 0.7400 0.5862 0.9375 0.6000	Recall 0.8762 0.9846 0.8973 0.7524 0.6600 0.8409 0.6296 0.7895 0.3333	F-score  0.8058 0.9865 0.9066 0.8404 0.7097 0.7872 0.6071 0.8571 0.4286	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	ap POS to State TRE	ags  4 8 66 1 0 131 0 2 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	21 0 2 79 0 1 0 0 0 0	8 0 0 0 33 9 0 0	## 4 4 0 0 1 1 1 37 0 0 0 0 0 0 0 0	# RCC   RCC	4 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9	10 0 0 0 0 0 0 0 0	5 0 1 0 0 0 0 0	3 0 0 0 0 0 0 0 0 1	7,876 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0	0.7459 0.9884 0.9161 0.9518 0.7674 0.7400 0.5862 0.9375 0.6000 0.6667	Recall 0.8762 0.9846 0.8973 0.7524 0.6600 0.8409 0.6296 0.7895 0.3333 0.2667	F-score  0.8058 0.9865 0.9066 0.8404 0.7097 0.7872 0.6071 0.8571 0.4286 0.3810	<u>Overall A</u> 83.17%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap POS to State TRE 5	ags  4 8 66 1 0 131 0 2 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	21 0 2 79 0 1 0 0 0 0 1	8 0 0 0 33 9 0 0 0	4 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	# RCG   RCG	4 0 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 1 0 0		0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7459 0.9884 0.9161 0.9518 0.7674 0.7400 0.5862 0.9375 0.6000 0.6667 0.2857	Recall	F-score  0.8058 0.9865 0.9066 0.8404 0.7097 0.7872 0.6071 0.8571 0.4286 0.3810 0.1818	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap POS to State TRE	ags  4 8 66 1 0 131 0 2 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	21 0 2 79 0 1 0 0 0 0 1 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 0 1 1 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	# RCC   RCC	4 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 0 0 1 0 1 0 9 0	10 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0	3 0 0 0 0 0 0 1 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7459 0.9884 0.9161 0.9518 0.7674 0.7400 0.5862 0.9375 0.6000 0.6667 0.2857 0.4444	Recall	F-score  0.8058 0.9865 0.9066 0.8404 0.7097 0.7872 0.6071 0.8571 0.4286 0.3810 0.1818 0.4211	

Figure C.34: Experiment Run 20: Emoticons Assigned "EMO" or "EMO2" Tags

Using Actu		S tags		et tru	JiOT VIO	Jestion Jestion	Due stion	it find	BYE /	Conti	Rejec	YATS	net nans	met Other	Clait	Precision	Recall	F-score	Overall Accuracy
Statement	250	4	6	18	8	1	7	9	6	8	11	0	4	0	4	0.7440	0.8224	0.7813	
System	3	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9892	0.9857	0.9874	02.0070
Greet	17	0	116	1	1	0	0	0	3	1	0	0	0	0	0	0.8345	0.9063	0.8689	
Emotion	6	0	0	106	0	0	2	0	0	0	0	0	0	0	0	0.9298	0.8346	0.8797	
ynQuestion	7	0	2	0	38	2	0	0	0	0	0	0	0	0	0	0.7755	0.7308	0.7525	
whQuestion	4	0	1	0	4	39	0	1	0	0	0	0	0	0	0	0.7959	0.9070	0.8478	
Accept	7	0	0	1	0	0	5	0	0	0	0	3	0	0	0	0.3125	0.2632	0.2857	
Emphasis	3	0	2	1	0	0	1	7	1	0	0	0	0	0	0	0.4667	0.3889	0.4242	
Bye	2	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0.8750	0.5600	0.6829	
Continuer	2	0	0	0	0	0	0	1	0	4	0	1	0	0	0	0.5000	0.2857	0.3636	
Reject	2	0	0	0	0	1	0	0	0	0	4	0	2	0	0	0.4444	0.2667	0.3333	
yAnswer	0	0	1	0	1	0	4	0	0	0	0	3	0	0	0	0.3333	0.4286	0.3750	
nAnswer	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0.5000	0.2500	0.3333	
Other	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.0000	0.0000	undef	
Clarify Using Che				0	0	0	) (idi	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
	ap PO	S tags	3 3																Overall A
Using Chea	ap PO	S tags	3 3	get fine	Stion And	Jestion wh	Question Acce	igt kingl	BYE /	Conii	Reject Reject	VARS	Jet nans	unet Officet	Clarit	Precision	Recall	F-score	Overall A
Using Chea	ap PO රුම් 260	S tags	err GR	21	Jiton Viol	destion of one	Quesion 7	gi trugi 11	Rasis Aye	Conii	geec 9	yAnsi 2	nans	utei Ottei	Chairt 4	Precision 0.7345	Recall 0.8553	<u>F-score</u> 0.7903	
Using Chea	ap PO	S tags	S CHE	21 0	Jilon Vino	Jestion 1	Quesion 7 0	ST FINDS	Rajis Rye 7 0	Continue 9	Resp.	VARSI 2 0	nans	net Offet	Clarit 4 0	Precision 0.7345 0.9928	Recall 0.8553 0.9892	F-score 0.7903 0.9910	
Using Chea	ap PO  260 2 16	S tags  S tags  2  276	7 0 116	21 0 0	Stion Vinds	Lesion 1	Question 7 7 0		7 0 2	Conti	Reign P	1 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/	runs 5 0	Offici O	Cait 4	Precision 0.7345 0.9928 0.8467	Recall 0.8553 0.9892 0.9063	F-score 0.7903 0.9910 0.8755	
Using Chean Statement System Greet Emotion	ap PO  260 2 16 3	S tags  Effect  2  276  0 0	7 0 116	21 0 0 105	ynd ynd 9 0 1 1 0	Jestion 1 0 1 0	Quesitor 7 7 0 0		7 0 2	CONT. 9 0 1 0	Aeie, de la company de la comp	2 0 0	nans	otres  Otres  O  O  O  O	0 0 0	Precision 0.7345 0.9928 0.8467 0.9459	Recall 0.8553 0.9892 0.9063 0.8268	F-score 0.7903 0.9910 0.8755 0.8824	
Statement System Greet Emotion ynQuestion	ap PO  260 2 16 3 9	S tags  S tags  English  2  276  0  0	7 0 116 0 2	21 0 0 105	9 0 1 0 37	Lestion 1 0 1 0 2	Diedion		7 0 2 1	9 0 1 0 0	geie	2 0 0 0	rans 5 0 0	otret Otret 0 0 0	Oziti 4 0 0 0	Precision 0.7345 0.9928 0.8467 0.9459 0.7400	Recall 0.8553 0.9892 0.9063 0.8268 0.7115	F-score 0.7903 0.9910 0.8755 0.8824 0.7255	
Statement System Greet Emotion ynQuestion whQuestion	ap PO  260 2 16 3 9 2	S tags  S tags  2  276  0  0  0	7 0 116 0 2	21 0 0 105 0	9 0 1 0 37 3	1 0 1 0 2 38	Diesion 7 0 0 0 2 0 0 0	11 0 0 0 0	7 0 2 1 0	Conti 9 0 1 0 0	ger aciec	7 PHOST 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	o o o o o	C'aith 4 0 0 0 0 0	Precision 0.7345 0.9928 0.8467 0.9459 0.7400 0.8444	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837	F-score 0.7903 0.9910 0.8755 0.8824 0.7255 0.8636	
Statement System Greet Emotion ynQuestion whQuestion Accept	ap PO  260 2 16 3 9	S tags  2 276 0 0 0 0	7 0 116 0 2 1	21 0 0 105 0 0	9 0 1 0 37	Lestion 1 0 1 0 2	7 0 0 2 0 0 5		7 0 2 1	9 0 1 0 0	geie	2 0 0 0	rans 5 0 0	Otres O O O O O O O	Oziti 4 0 0 0	Precision 0.7345 0.9928 0.8467 0.9459 0.7400	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632	F-score 0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857	
Statement System Greet Emotion ynQuestion whQuestion	ap PO  260 2 16 3 9 2 6	S tags  S tags  2  276  0  0  0	7 0 116 0 2	21 0 0 105 0	9 0 1 0 37 3	1 0 1 0 2 38	7 0 0 2 0 0 5	11 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 2 1 0 0 0	Conti 9 0 1 0 0 0	Reject Reject	2 0 0 0 0 0	7,A,TS  5  0  0  0  0  0	o o o o o	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837	F-score 0.7903 0.9910 0.8755 0.8824 0.7255 0.8636	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye	ap PO  260 2 16 3 9 2 6 4	S tags 2 276 0 0 0 0 0	7 0 116 0 2 1 0 2	21 0 0 105 0 0	9 0 1 0 37 3 1	1 0 1 0 2 38 0 0	7 0 0 2 0 0 5	11 0 0 0 0 1 1 0 6	7 0 2 1 0 0	CONT   9	general property of the control of t	2 0 0 0 0 0 4 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ottes Ottes O O O O O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286 1.0000	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.3333 0.6000	F-score 0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.3750	Overall A 83.24%
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis	260 260 2 16 3 9 2 6 4	S tags 2 276 0 0 0 0 0 0	7 0 116 0 2 1 0	21 0 0 105 0 0 105 0	9 0 1 0 37 3 1 0 0	1 0 1 0 2 38 0 0 0 0	7 0 0 0 0 5 1 0 0 0	11 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 2 1 0 0 0 0	CSriii 9 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0	2 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.3333	F-score 0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.3750	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer	ap PO  260 2 16 3 9 2 6 4 0 1	S tags  2 276 0 0 0 0 0 0 0 0	7 0 116 0 2 1 0 0	21 0 0 105 0 0 0 0	9 0 1 0 37 3 1 0 0	1 0 1 0 2 38 0 0	7 0 0 0 2 0 0 5 1 0 0 0	11 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 2 1 0 0 0 0 0	9 0 1 0 0 0 0 0	9 0 0 0 0 0 0	2 0 0 0 0 0 4 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286 1.0000 0.8000	Recall 0.8553 0.9892 0.9063 0.8268 0.7115 0.8837 0.2632 0.3333 0.6000 0.2857	F-score 0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.3750 0.7500 0.4211	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject	ap PO  260 2 16 3 9 2 6 4 0 1	S tags  2  276  0  0  0  0  0  0  0  0  0	7 0 116 0 2 1 0 0 0	21 0 0 105 0 0 0 0 0 0	9 0 1 0 37 3 1 0 0	1 0 1 0 2 38 0 0 0 0	7 0 0 0 2 0 0 5 1 0 0	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 2 1 0 0 0 0 0 0	9 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Chariff 4	9. Precision 0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286 1.0000 0.8000 0.6667	Recall	F-score 0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.37500 0.4211 0.3810	
Statement System Greet Emotion ynQuestion whQuestion Accept Emphasis Bye Continuer Reject yAnswer	ap PO  260 2 16 3 9 2 6 4 0 1 0 0	S tags 2 276 0 0 0 0 0 0 0 0	7 0 0 116 0 0 0 0 0 0 0 0 0 0	21 0 0 105 0 0 0 0 0 0 0	9 0 1 0 37 3 1 0 0 0	1 0 1 0 2 38 0 0 0 0 0	7 0 0 0 2 0 0 0 0 0 0 0 0 0 0 4	11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 2 1 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision 0.7345 0.9928 0.8467 0.9459 0.7400 0.8444 0.3125 0.4286 1.0000 0.8000 0.6667 0.1667	Recall	F-score 0.7903 0.9910 0.8755 0.8824 0.7255 0.8636 0.2857 0.37500 0.7500 0.4211 0.3810 0.1538	

Figure C.35: Experiment Run 25: Emoticons Assigned "EMO" or "EMO2" Tags

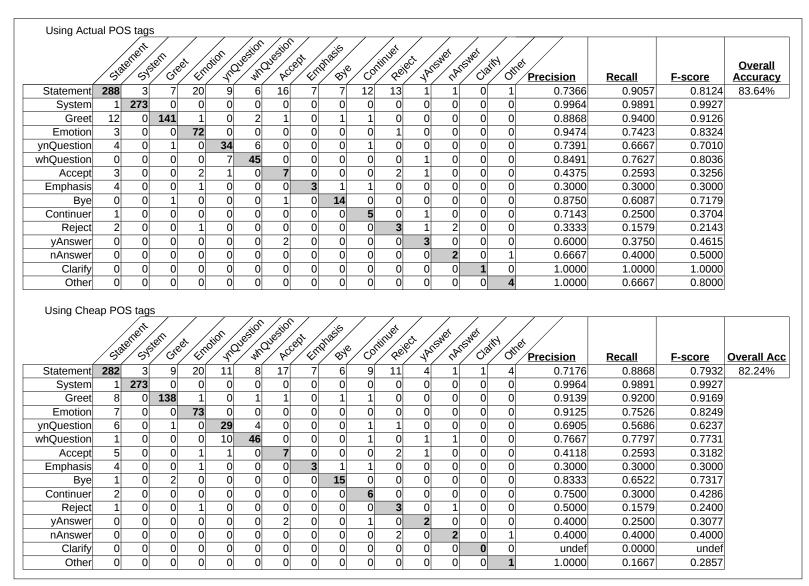


Figure C.36: Experiment Run 30: Emoticons Assigned "EMO" or "EMO2" Tags

Š	Stat	genent Sys	Sell Cite	et fine	Jion yno	un allestion	Mestion	ZŽŽ VÝ	EMP	lasis Con	itruet Relea	J Ans	wet nanst	det Claim	Other	Precision	<u>Recall</u>	F-score	Overall Accuracy
Statement	263	4	0	20	8	7	17	5	9	9	12	2	4	4	0	0.7225	0.8946	0.7994	83.72%
System	2	298	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9933	0.9868	0.9900	
Greet	8	0	114	0	0	0	0	0	2	2	1	0	0	0	1	0.8906	0.9421	0.9157	
Emotion	4	0	4	84	0	0	0	0	0	0	0	0	0	0	0	0.9130	0.7778	0.8400	
ynQuestion	6	0	0	0	39	4	0	0	0	1	0	1	0	0	0	0.7647	0.7647	0.7647	
whQuestion	1	0	0	0	1	52	0	0	0	0	0	0	0	0	0	0.9630	0.8254	0.8889	
Accept	7	0	0	0	1	0	8	0	1	0	2	3	0	0	0	0.3636	0.2963	0.3265	
Bye	0	0	1	0	0	0	0	14	0	0	0	0	0	0	0	0.9333	0.7368	0.8235	
Emphasis	0	0	2	4	1	0	0	0	6	0	0	1	0	0	0	0.4286	0.3000	0.3529	
Continuer	0	0	0	0	0	0	1	0	1	7	0	1	0	0	0	0.7000	0.3684	0.4828	
Reject	1	0	0	0	1	0	0	0	1	0	3	0	3	0	0	0.3333	0.1667	0.2222	
yAnswer	1	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0.6000	0.2727	0.3750	
nAnswer	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1.0000	0.3000	0.4615	
Clarify	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
041-																			
Other Using Chea				0	0	0 ion	0 sign	0	0	0	0	0	0	0	1	1.0000	0.5000	0.6667	
	ap PO	S tags	3					٠,											Overall A
Using Chea	ap PO	OS tags	ight Gre	et Em	dion ynO	un who	The stor	ar of	Emp	lasis Con	tiruet Rejec	yans'	nans'	dair Clair	Other	Precision	Recall	F-score	
Using Chea	ap PO	OS tags	Serr GR	19	dion yno	alestion of the same of the sa	Liestion PCC	20t / 87¢ / 5	Empl 11	Resis Con	iiruet Reier 10	VANS 2	net ransi	met Clariff	Other 1	Precision 0.7322	Recall 0.9116	<u>F-score</u> 0.8121	
Using Chea	ap PO දුර්මි <b>268</b>	OS tags	Eeff Cick	19 1	obiton Vino	ym 9	nestion PC	5 0	Empl 11 0	Resis O	Timuet Rejection 10	VANS	naret ransi	date Clair	Other 1 0	Precision 0.7322 0.9967	Recall 0.9116 0.9901	F-score 0.8121 0.9934	
Using Chea	ap PO	S tage	1 0 115	19 1 2	o o	un 9 0 1	ACC 15 0	5 5 0	11 0 0	8 0 2	Reservation 10	2 0 0	rarsi	Cair Cair	Office of the contract of the	Precision 0.7322 0.9967 0.9274	Recall 0.9116 0.9901 0.9504	F-score 0.8121 0.9934 0.9388	
Using Chea	268 0 3	2S tags 28 tags 3 299 0	1 0 115 2	19 1 2 82	diton vice 7 0 0 0	yuesion 9 0 1 0	Accident Property of the prope	5 0 0		8 0 2	10 0 1 0	VARIA 2 0 0 0 0 0	narei	Cait O	0 0 0 0	Precision 0.7322 0.9967 0.9274 0.9111	Recall 0.9116 0.9901 0.9504 0.7593	F-score 0.8121 0.9934 0.9388 0.8283	
Statement System Greet Emotion ynQuestion	268 0 3 4 6	25 tags 25 tags 299 0 0	1 0 115 2	19 1 2 82 0	7 0 0 0 38	un 9 0 1 0 3	Augustion Discourse Page 15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0	######################################	8 0 2 0 2	Linus Person Per	7 Ansi 2 0 0 0 0 1	ransi 4 0 0	October 1	Ottet 1 0 0 0	0.7322 0.9967 0.9274 0.9111 0.7600	Recall 0.9116 0.9901 0.9504 0.7593 0.7451	F-score 0.8121 0.9934 0.9388 0.8283 0.7525	
Statement System Greet Emotion ynQuestion whQuestion	268 0 3 4 6	25 tags 299 0 0 0	1 0 115 2 0	19 1 2 82 0 0	7 0 0 0 38 4	9 0 1 0 3 50	15 0 0 0 0 0 0	5 0 0 0	######################################	8 0 2 0 2	10 0 1 0 0 0 0 0	2 0 0 0 1	1	Janet Cailly Coally Coa	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7322 0.9967 0.9274 0.9111 0.7600 0.9091	Recall 0.9116 0.9901 0.9504 0.7593 0.7451 0.7937	F-score 0.8121 0.9934 0.9388 0.8283 0.7525 0.8475	
Statement System Greet Emotion ynQuestion whQuestion Accept	268 0 3 4 6 1 5	299 0 0 0 0 0 0	1 0 115 2 0 0	19 1 2 82 0 0	7 0 0 0 38 4	9 0 1 0 3 <b>50</b> 0	15 0 0 0 0 0 11	5 0 0 0 0	######################################	8 0 2 0 2 0 0	10 0 1 0 0 0 2	VARIS 2 0 0 0 0 1 0 0 3	7.4.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	0 0 0 0 0 0	0thet 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7322 0.9967 0.9274 0.9111 0.7600 0.9091 0.4783	Recall 0.9116 0.9901 0.9504 0.7593 0.7451 0.7937 0.4074	F-score 0.8121 0.9934 0.9388 0.8283 0.7525 0.8475 0.4400	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	268 0 3 4 6 1 5	299 0 0 0 0	1 0 115 2 0 0	19 1 2 82 0 0 0	7 0 0 0 38 4 1	9 0 1 0 3 <b>50</b> 0	15 0 0 0 0 0 11 0	5 0 0 0 0 0	11 0 0 2 0 0 1	8 0 2 0 2 0 0	10 0 0 0 0 0 0 0	2 0 0 0 1 0 3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7322 0.9967 0.9274 0.9111 0.7600 0.9091 0.4783 0.8750	Recall 0.9116 0.9901 0.9504 0.7593 0.7451 0.7937 0.4074 0.7368	F-score 0.8121 0.9934 0.9388 0.8283 0.7525 0.8475 0.4400 0.8000	<u>Overall A</u> 84.28%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	268 0 3 4 6 1 5	28 tags 299 0 0 0 0 0 0	1 0 115 2 0 0 0 1 2	19 1 2 82 0 0 0 0 4	7 0 0 0 38 4 1 0	9 0 1 0 0 0 0 0 0	15 0 0 0 0 0 11 0 0 0	5 0 0 0 0 0 0 14	######################################	8 0 2 0 2 0 0 0	10 0 0 0 0 0 0 0 0	2 0 0 0 0 1 0 3 0	0 0 0 0 0 0 0	3 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7322 0.9967 0.9274 0.9111 0.7600 0.9091 0.4783 0.8750 0.4167	Recall 0.9116 0.9901 0.9504 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500	F-score  0.8121 0.9934 0.9388 0.8283 0.7525 0.8475 0.4400 0.8000 0.3125	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	268 0 3 4 6 1 5 1	28 tags 299 0 0 0 0 0 0 0 0	1 0 115 2 0 0 1 2 0	19 11 2 82 0 0 0 0 4	7 0 0 0 38 4 1 0	9 0 1 0 3 50 0 0	15 0 0 0 0 0 11 0 0 1	5 0 0 0 0 0 0 14	11 0 0 0 2 0 0 1 0 5 0 0	8 0 2 0 0 0 0 0 0 7	10 0 0 0 0 0 0 0 0 0	2 0 0 0 0 1 0 3 0 1 1	0 0 0 0 0 0 0 0	3 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7322 0.9967 0.9274 0.9111 0.7600 0.9091 0.4783 0.8750 0.4167 0.7000	Recall 0.9116 0.9901 0.9504 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684	F-score  0.8121 0.9934 0.9388 0.8283 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	268 0 3 4 6 1 5 1 0	25 tags 299 0 0 0 0 0 0 0 0 0	1 0 115 2 0 0 0 1 2 0 0 0	19 1 2 82 0 0 0 0 0 0	7 0 0 0 38 4 1 0 0	9 0 1 0 3 50 0 0 0	15 0 0 0 0 0 0 11 0 0 0 1 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 0 0	11 0 0 2 0 0 1 0 5 0 1	8 0 2 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 1 0 3 0 1 1	1 A C C C C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0	Precision  0.7322 0.9967 0.9274 0.9111 0.7600 0.9091 0.4783 0.8750 0.4167 0.7000 0.4000	Recall 0.9116 0.9901 0.9504 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684 0.2222	F-score  0.8121 0.9934 0.9388 0.8283 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	268 0 3 4 6 1 5 1 0	25 tags 299 0 0 0 0 0 0 0 0 0 0	1 0 115 2 0 0 0 0 0 0 0 0 0	19 1 2 82 0 0 0 0 0 0 0	7 0 0 0 38 4 1 0 0	9 0 1 0 3 50 0 0 0	15 0 0 0 0 0 11 0 0	5 0 0 0 0 0 0 0 0 0	11 0 0 2 0 0 1 0 5 0 1 0 0 1 0 0 0 0 1 0 0 0 0 0	8 0 2 0 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 1 0 3 0 1 1 0 3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7322 0.9967 0.9274 0.9111 0.7600 0.9091 0.4783 0.8750 0.4167 0.7000 0.4000 0.6000	Recall 0.9116 0.9901 0.9504 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684 0.2222 0.2727	F-score  0.8121 0.9934 0.9388 0.8283 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828 0.2857 0.3750	<u>Overall A</u> 84.28%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	268 0 3 4 6 1 5 1 0	25 tags 299 0 0 0 0 0 0 0 0 0	1 0 115 2 0 0 0 1 2 0 0 0	19 1 2 82 0 0 0 0 0 0	7 0 0 0 38 4 1 0 0	9 0 1 0 3 50 0 0 0	15 0 0 0 0 0 0 11 0 0 0 1 0 0 0 0 0 0 0	5 0 0 0 0 0 0 0 14	11 0 0 2 0 0 1 0 5 0 1	8 0 2 0 0 0 0 0 0	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 1 0 3 0 1 1	1 A C C C C C C C C C C C C C C C C C C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0	Precision  0.7322 0.9967 0.9274 0.9111 0.7600 0.9091 0.4783 0.8750 0.4167 0.7000 0.4000	Recall 0.9116 0.9901 0.9504 0.7593 0.7451 0.7937 0.4074 0.7368 0.2500 0.3684 0.2222	F-score  0.8121 0.9934 0.9388 0.8283 0.7525 0.8475 0.4400 0.8000 0.3125 0.4828 0.2857	

Figure C.37: Experiment Run 35: Emoticons Assigned "EMO" or "EMO2" Tags

Using Actu	/		Cies	ž kni	hior yno	Jestion wh	Due stion	gt / bye	Emp	Conti	Rejec	y Ansi	n And	other other	Clait	Precision	<u>Recall</u>	F-score	Overall Accuracy
Statement	279	3	7	10	15	3	10	4	8	7	16	4	1	0	6	0.7480	0.8532	0.7971	83.66%
System		64	2	0	0	0	0	0	0	0	0	0	0	0	0	0.9814	0.9814	0.9814	
Greet	16		31	1	0	0	0	0	0	0	1	0	0	0	0	0.8792	0.9034	0.8912	
Emotion	6	0	1	99	0	0	0	0	1	0	0	0	0	1	1	0.9083	0.8839	0.8959	
ynQuestion	4	2	1	0	44	1	0	0	1	0	0	0	0	0	0	0.8302	0.7097	0.7652	
whQuestion	1	0	1	0	2	44	0	0	1	0	0	1	0	0	0	0.8800	0.8980	0.8889	
Accept	6	0	0	0	1	0	13	0	1	1	1	2	0	0	0	0.5200	0.5200	0.5200	
Bye	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	1.0000	0.7778	0.8750	
Emphasis	3	0	2	2	0	0	0	0	6	0	0	0	0	0	0	0.4615	0.3158	0.3750	
Continuer	2	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0.6667	0.3077	0.4211	
Reject	3	0	0	0	0	0	0	0	1	0	2	0	1	0	0	0.2857	0.0952	0.1429	
yAnswer	1	0	0	0	0	1	2	0	0	0	0	5	0	0	0	0.5556	0.4167	0.4762	
nAnswer	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0.0000	0.0000	undef	
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1.0000	0.5000	0.6667	
C1 .c																			
Clarify Using Chea			0	0	0	0	0	0	0	0	0	0	0	0	0	0.0000	0.0000	undef	
	ap POS	ags																	Overall A
Using Chea	ap POS	ags ant system	Sie Sie	st Line	Jiton ynd	Jestion wh	Question Acce	St. Ase	Emp	lasis Coni	ruet Reiec	, VARS	nan	ulet Other	Clait	Precision	Recall	F-score	-
Using Chea	ap POS	ags	Cieles 5	Erni 11	ston yndi	estion who	Diesion PCC	Rit A	Emgl 11	Rasis Conti	Truet Reigo	yAnsi yAnsi	nAns	net Office	Clarit 6	Precision 0.7439	<b>Recall</b> 0.8440	<u>F-score</u> 0.7908	-
Using Chea	276 2 2	ags  System  2  65	5 3		Jilon Vindi	gestlor wr 4	Duesion 10	4 0	#### 11 0	Rasis Coni	Reigi 15 0	VANS	ner nere	Officer O	Chair 6	Precision 0.7439 0.9779	Recall 0.8440 0.9851	F-score 0.7908 0.9815	-
Using Chea	276 2 2 16	ags  Significant  Significant  Significant  Considering  Considering	5 3 31	11 1 0	Jiton Vinoli Vin	Jestion 4 0	Digestion  10  0  1	4 0 0		Continue 8	Reigi Deigi 15 0 1	yAnsi 5 0	nare 0 0	o Other	Cari	Precision 0.7439 0.9779 0.8792	Recall 0.8440 0.9851 0.9034	F-score 0.7908 0.9815 0.8912	-
Using Chean Statement System Greet Emotion	276 2 2 16	ags  2  65  0  1	5 3 31	11 1 0 98	14 0 0	estion 4 0 0	Duesitori 10 0 1	4 0 0 0		Res Continue of the continue o	The structure of the st	5 0 0	TRAFF	Ottes  Ottes  Ottes  Ottes  Ottes	0 0 0 1	Precision 0.7439 0.9779 0.8792 0.9245	Recall 0.8440 0.9851 0.9034 0.8750	F-score 0.7908 0.9815 0.8912 0.8991	-
Statement System Greet Emotion ynQuestion	276 2 2 16 3	ags  5) Septiment  2  65  0  1	5 3 31 1	11 1 0 98 0	14 0 0 1 42	un de la companya de	Diesilon Diesilon 10 0 1	\$\frac{1}{2} \\ \frac{1}{2} \\ \frac		Continue 8 0 0 0 0 0	15 0 1 0	ARS 5 0 0 0 0 0	narri 0 0 0 0	offet of the state	C)2011 6 0 0 1	Precision 0.7439 0.9779 0.8792 0.9245 0.7119	Recall 0.8440 0.9851 0.9034 0.8750 0.6774	F-score 0.7908 0.9815 0.8912 0.8991 0.6942	-
Statement System Greet Emotion ynQuestion whQuestion	276 2 2 16 3 10	2 65 0 1 1 1	5 3 31 1 3	11 1 0 98 0	14 0 0 1 42 4	4 0 0 0 2 42	10 0 1 0 0 0	4 0 0 0 0	######################################	8 0 0 0	15 0 1 0 0 0 0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nAnte	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C)Rain 6 0 0 1 0 0 0 0	Precision 0.7439 0.9779 0.8792 0.9245 0.7119 0.8750	Recall 0.8440 0.9851 0.9034 0.8750 0.6774 0.8571	F-score 0.7908 0.9815 0.8912 0.8991 0.6942 0.8660	-
Statement System Greet Emotion ynQuestion whQuestion Accept	276 2 2 16 3 10 0 11	ags  2  65  0  1  0  0	5 3 31 1 3 0	11 1 0 98 0 0	14 0 0 1 42 4	4 0 0 0 2 42 0	10 0 10 0 0 1 0	4 0 0 0 0 0	######################################	8 0 0 0 0 0	15 0 1 0 0 0 1	VANS 5 0 0 0 1 2	0 0 0 0 0 0	Official Control of the Control of t	Calif	Precision	Recall 0.8440 0.9851 0.9034 0.8750 0.6774 0.8571 0.4800	F-score 0.7908 0.9815 0.8912 0.8991 0.6942 0.8660 0.4364	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	276 2 2 16 3 10 0 11 1	2 65 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 3 31 1 3 0 0	11 1 0 98 0 0 0	14 0 0 1 42 4	4 0 0 0 2 42 0	10 0 0 1 0 0 0 1 1 1 1 1	4 0 0 0 0 0 0	######################################	8 0 0 0 0 0	15 0 0 0 0 0 0	1 ARTS 5 0 0 0 0 0 1	O O O O O	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ciair 6 0 0 1 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8750 0.6774 0.8571 0.4800 0.7778	F-score 0.7908 0.9815 0.8912 0.8991 0.6942 0.8660 0.4364 0.8235	Overall A 82.92%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	276 2 2 16 3 10 0 11 1 2	ags  2  65  0  1  0  0  0  0  0	5 3 31 1 3 0 0 0	11 1 0 98 0 0 1	14 0 0 1 42 4 1 0	4 0 0 0 2 42 0 0	10 0 0 0 0 12 1	4 0 0 0 0 0 0 0 0	11 0 0 1 1 0 1 0 5	8 0 0 0 0 0 0	15 0 1 0 0 0 0	5 0 0 0 0 1 2 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7439  0.9779  0.8792  0.9245  0.7119  0.8750  0.4000  0.8750  0.5000	Recall 0.8440 0.9851 0.9034 0.8750 0.6774 0.8571 0.4800 0.7778 0.2632	F-score 0.7908 0.9815 0.8912 0.8991 0.6942 0.8660 0.4364 0.8235 0.3448	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	276 2 2 16 3 10 0 11 1 2 2 2	ags 2 65 0 1 0 0 0 0 0 0	5 3 31 1 3 0 0 0 2	11 1 0 98 0 0 1 0	14 0 0 1 42 4 1	4 0 0 0 2 42 0 0 0	10 0 0 0 0 12 1 0	4 0 0 0 0 0 0	11 0 0 1 1 1 0 5	8 0 0 0 0 0	15 0 0 0 0 0 0 0	5 0 0 0 0 1 2	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision	Recall 0.8440 0.9851 0.9034 0.8750 0.6774 0.8571 0.4800 0.7778 0.2632 0.3077	F-score 0.7908 0.9815 0.8912 0.8991 0.6942 0.8660 0.4364 0.8235 0.3448 0.4211	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	276 2 2 16 3 10 0 11 1 2 2 1	ags 2 65 0 1 0 0 0 0 0 0 0 0	5 3 31 1 3 0 0 0 0 0	11 1 0 98 0 0 1 0 1 0	14 0 0 1 42 4 1 0 0 0	4 0 0 0 2 42 0 0 0 0 0	10 0 0 0 0 12 1 0 0	4 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0 0 0 0	8 0 0 0 0 0 0 0 0 0 4	15 0 1 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 1 2 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7439  0.9779  0.8792  0.9245  0.7119  0.8750  0.4000  0.8750  0.5000  0.6667  0.6000	Recall 0.8440 0.9851 0.9034 0.8750 0.6774 0.8571 0.4800 0.7778 0.2632 0.3077 0.1429	F-score 0.7908 0.9815 0.8912 0.8991 0.6942 0.8660 0.4364 0.8235 0.3448 0.4211 0.2308	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	276 2 2 16 3 10 0 11 1 2 2 2	2 65 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 3 31 1 3 0 0 0 2	11 1 0 98 0 0 1 0	14 0 0 1 42 4 1 0 0	4 0 0 0 0 2 42 0 0 0 0 0 0	10 0 0 1 0 0 0 12 1 0 0	4 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0 0 0 0 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 0 1 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 1 2 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7439  0.9779  0.8792  0.9245  0.7119  0.8750  0.4000  0.8750  0.5000  0.6667  0.6000  0.6667	Recall 0.8440 0.9851 0.9034 0.8750 0.6774 0.8571 0.4800 0.7778 0.2632 0.3077 0.1429 0.3333	F-score 0.7908 0.9815 0.8912 0.8991 0.6942 0.8660 0.4364 0.8235 0.3448 0.4211 0.2308 0.4444	-
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	ap POS 1 276 2 2 16 3 10 0 11 1 2 2 1 0	ags 2 65 0 1 0 0 0 0 0 0 0 0	5 3 31 1 3 0 0 0 0 0 0	11 1 0 98 0 0 1 0 1 0 0	14 0 0 1 42 4 1 0 0 0	4 0 0 0 2 42 0 0 0 0 0	10 0 0 0 0 12 1 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0	11 0 0 1 1 0 5 0 0 0 0	8 0 0 0 0 0 0 0 0 0 4	15 0 1 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7439  0.9779  0.8792  0.9245  0.7119  0.8750  0.4000  0.8750  0.5000  0.6667  0.6000	Recall 0.8440 0.9851 0.9034 0.8750 0.6774 0.8571 0.4800 0.7778 0.2632 0.3077 0.1429	F-score 0.7908 0.9815 0.8912 0.8991 0.6942 0.8660 0.4364 0.8235 0.3448 0.4211 0.2308	-

Figure C.38: Experiment Run 40: Emoticons Assigned "EMO" or "EMO2" Tags

Using Actu		S tags		st line	Jion yn Qi	estion	Oue stion	St Of	Empl	nasis Cont	anuet Rejec	VAIS	nAni-	guet Clarity	Othe	Precision	Recall	F-score	Overall Accuracy
Statement	285	4	7	19	8	6	5	4	7	11	11	3	2	1	0	0.7641	0.8559	0.8074	83.77%
System	4	270	0	19	0	0	0	0	0	0	0	0	0	0	0	0.9818	0.8339	0.8074	03.7770
Greet	11	0	109	2	0	1	0	0	0	1	0	0	0	0	0	0.8790	0.8790	0.8790	
Emotion	4	0	2	94	0	0	0	0	1	0	0	0	0	0	0	0.9307	0.7899	0.8545	
ynQuestion	10	0	1	0	35	2	0	0	0	0	0	0	0	1	0	0.7143	0.7609	0.7368	
whQuestion	0	0	3	0	2	48	0	0	0	1	0	0	0	0	0	0.8889	0.8421	0.8649	
Accept	8	0	0	0	0	0	14	0	0	0	0	2	1	0	0	0.5600	0.6087	0.5833	
Bye	1	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0.9412	0.7273	0.8205	
Emphasis	2	0	2	2	0	0	0	0	8	1	1	0	0	0	0	0.5000	0.4706	0.4848	
Continuer	4	0	0	0	1	0	1	0	0	4	0	0	0	0	0	0.4000	0.2105	0.2759	
Reject	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0.3333	0.0714	0.1176	
yAnswer	0	0	0	1	0	0	3	0	0	1	0	3	0	0	0	0.3750	0.3750	0.3750	
nAnswer	1	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0.7500	0.6667	0.7059	
Clarify	2	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0.2500	0.3333	0.2857	
Other Using Chea				0	0	0	0	1	0	0	0	0	0	0	4	0.8000	1.0000	0.8889	
	ap PC	S tags	3 3						-1										Oursell A
Using Che	ap PC	OS tags	3 3	st true	Jiton yn Qi	estion wh	Question Acce	Me Ale	Empl	nasis Cont	Reject Reject	VARS	net name	Clair!	Other	Precision	Recall	F-score	Overall A
Using Chea	ap PC خور 292	OS tags	sen Ge	21 21	otion on other production of the production of t	estion who	Quesion A	Ř Ř	Empl 9	nasis Coni	nuet Reiect	yAnsi 4	ner ner	Julet Clarify	Other 2	<u>Precision</u> 0.7545	<b>Recall</b> 0.8769	<u>F-score</u> 0.8111	
Using Chea	ap PC خورت <b>292</b> 2	OS tags	ern Gre	21 0	Jilon Maria	estion who	Quesion A 4		Emil 9 0	Danie Continue of the continue	Repet Repet	VANS	nani 2 0	David Clarify	Other Other	Precision 0.7545 0.9926	Recall 0.8769 0.9854	F-score 0.8111 0.9890	
Using Chea	ap PC	25 tags  Leftent  4  270  0	7 0 110	21 0 2	Stiert Vried	gestion 3 0 1	Question Acce 4 0		tind 9 0 0	10 0 1	Reigi 12 0 0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nancia nancia 2 0	Cairy Cairy 2 0	Office 2 0	Precision 0.7545 0.9926 0.9016	Recall 0.8769 0.9854 0.8871	F-score 0.8111 0.9890 0.8943	
Using Chean Statement System Greet Emotion	292 2 8 3	25 tags 25 tags 270 0 0	7 0 110 2	21 0 2 90	yndi 9 0 0	Section 3 0 1 0	Oueside A O O O	6 0 0	9 0 0	10 0 1 0	Reie Control of the c	4 0 0 0	nAnti-	Cairly Colors	0 Office 0 0 0 0	Precision 0.7545 0.9926 0.9016 0.9474	Recall 0.8769 0.9854 0.8871 0.7563	F-score 0.8111 0.9890 0.8943 0.8411	
Statement System Greet Emotion ynQuestion	292 2 8 3 11	25 tags  270  0  0  0	7 0 110 2	21 0 2 90	9 0 0 0 29	3 0 1 0	Ouesian Acce	6 0 0	######################################		12 0 0 0	4 0 0 0 0 0 0	2 0 0 0	Cairy Co 0 0	0 Otnes	Precision 0.7545 0.9926 0.9016 0.9474 0.6591	Recall 0.8769 0.9854 0.8871 0.7563 0.6304	F-score 0.8111 0.9890 0.8943 0.8411 0.6444	
Statement System Greet Emotion ynQuestion whQuestion	292 2 8 3 11	270 0 0	7 0 110 2 1 2	21 0 2 90 0	9 0 0 0 29 8	3 0 1 0 1 52	Diesion O	6 0 0 0	######################################	10 0 1 0 1 1	12 0 0 0 0	4 0 0 0 0	7 na	Cairy Con 0 0 0 1 0	0 0 0 0 0 0 0	Precision 0.7545 0.9926 0.9016 0.9474 0.6591 0.8125	Recall 0.8769 0.9854 0.8871 0.7563 0.6304 0.9123	F-score 0.8111 0.9890 0.8943 0.8411 0.6444 0.8595	
Statement System Greet Emotion ynQuestion whQuestion Accept	292 2 8 3 11	25 tags  4  270  0  0  0  0	7 0 110 2 1 2	21 0 2 90 0 0	9 0 0 0 29 8	3 0 1 0 1 52	0 0 0 0 15	6 0 0 0 0	######################################	10 0 1 0 1 1 0	12 0 0 0 0 0	VARIO 0 0 0 0 0 0 2	7,A,TE 7, A,TE	0 0 0 0 1 0	0 0 0 0 0 0 0 0 0	Precision 0.7545 0.9926 0.9016 0.9474 0.6591 0.8125 0.6000	Recall 0.8769 0.9854 0.8871 0.7563 0.6304 0.9123 0.6522	F-score  0.8111 0.9890 0.8943 0.8411 0.6444 0.8595 0.6250	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye	292 2 8 3 11 1 8	9S tags 4 270 0 0 0 0 0	7 0 110 2 1 2 0	21 0 2 90 0 0 0	9 0 0 0 29 8 0	3 0 1 0 1 52 0	0 0 0 0 0 15 0	6 0 0 0 0 0	######################################	10 0 1 0 1 1 0 0	12 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0	2 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7545  0.9926  0.9016  0.9474  0.6591  0.8125  0.6000  1.0000	Recall 0.8769 0.9854 0.8871 0.7563 0.6304 0.9123 0.6522 0.7273	F-score  0.8111 0.9890 0.8943 0.8411 0.6444 0.8595 0.6250 0.8421	<u>Overall A</u> 83.49%
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis	292 292 2 8 3 11 1 8 0	25 tags 270 0 0 0 0 0 0 0	7 0 110 2 1 2 0 0	21 0 2 90 0 0 0 0	9 0 0 0 0 29 8 0 0	3 0 1 52 0 0	0 0 0 0 15 0 0	6 0 0 0 0 0 0 0	9 0 0 0 0 0 0	10 0 1 1 0 0 1 1 0 0	12 0 0 0 0 0 0	4 0 0 0 0 0 0 0	7.A.T. 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 Office of the control of the contr	0.7545 0.9926 0.9016 0.9474 0.6591 0.8125 0.6000 1.0000 0.4375	Recall 0.8769 0.9854 0.8871 0.7563 0.6304 0.9123 0.6522 0.7273 0.4118	F-score  0.8111 0.9890 0.8943 0.8411 0.6444 0.8595 0.6250 0.8421 0.4242	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer	292 2 2 8 3 11 1 8 0 2 4	25 tags 270 0 0 0 0 0 0 0 0 0	7 0 110 2 1 2 0 0 2	21 0 2 90 0 0 0 0 0 0	9 0 0 0 29 8 0 0	3 0 1 0 1 52 0 0 0	0 0 0 0 0 0 0 0 15 0 0 1 1	6 0 0 0 0 0 0 0 0	######################################	10 0 1 1 0 0 1 1 0 0 1 4	12 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0	7 P.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Precision  0.7545 0.9926 0.9016 0.9474 0.6591 0.8125 0.6000 1.0000 0.4375 0.4000	Recall 0.8769 0.9854 0.8871 0.7563 0.6304 0.9123 0.6522 0.7273 0.4118 0.2105	F-score  0.8111 0.9890 0.8943 0.8411 0.6444 0.8595 0.6250 0.8421 0.4242 0.2759	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	292 2 8 3 11 1 8 0 2	25 tags 4 270 0 0 0 0 0 0 0 0 0 0	7 0 110 2 1 2 0 0 0 0	21 0 2 90 0 0 0 0 0	9 0 0 0 29 8 0 0	3 0 1 0 1 52 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0	######################################	10 0 1 1 0 0 1 1 0 0 4	12 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0	0.7545 0.9926 0.9016 0.9474 0.6591 0.8125 0.6000 1.0000 0.4375 0.4000 0.0000	Recall 0.8769 0.9854 0.8871 0.7563 0.6304 0.9123 0.6522 0.7273 0.4118 0.2105 0.0000	F-score  0.8111 0.9890 0.8943 0.8411 0.6444 0.8595 0.6250 0.8421 0.4242 0.2759 undef	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject yAnswer	ap PC  292  2  8  3  11  1  8  0  2  4  1	25 tags 4 270 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 110 2 1 2 0 0 0 0	21 0 2 90 0 0 0 0 0 0 0	9 0 0 0 29 8 0 0	3 0 1 0 52 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0 0 0 0	6 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 0 1 0 1 1 0 0 1 1 4 0	12 0 0 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.7545 0.9926 0.9016 0.9474 0.6591 0.8125 0.6000 1.0000 0.4375 0.4000 0.0000 0.3333	Recall 0.8769 0.9854 0.8871 0.7563 0.6304 0.9123 0.6522 0.7273 0.4118 0.2105 0.0000 0.2500	F-score  0.8111 0.9890 0.8943 0.8411 0.6444 0.8595 0.6250 0.8421 0.4242 0.2759 undef 0.2857	
Statement System Greet Emotion ynQuestion whQuestion Accept Bye Emphasis Continuer Reject	292 2 8 3 11 1 8 0 2	25 tags 4 270 0 0 0 0 0 0 0 0 0 0	7 0 110 2 1 2 0 0 0 0	21 0 2 90 0 0 0 0 0	9 0 0 0 29 8 0 0 0	3 0 1 0 1 52 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6 0 0 0 0 0 0 0 0	######################################	10 0 1 1 0 0 1 1 0 0 4	12 0 0 0 0 0 0 0 0 0	4 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0 0	0.7545 0.9926 0.9016 0.9474 0.6591 0.8125 0.6000 1.0000 0.4375 0.4000 0.0000	Recall 0.8769 0.9854 0.8871 0.7563 0.6304 0.9123 0.6522 0.7273 0.4118 0.2105 0.0000	F-score  0.8111 0.9890 0.8943 0.8411 0.6444 0.8595 0.6250 0.8421 0.4242 0.2759 undef	

Figure C.39: Experiment Run 45: Emoticons Assigned "EMO" or "EMO2" Tags

Using Actu		enent Sys		et tim	dion yno	sestion who	Duestion Acce	ANE /	Emp	nasis Cont	Reject	YAMS	net name	Swet Clarify	Othe	Precision	Recall	F-score	Overall Accuracy
Statement	266	4	7	13	11	3	6	7	9	11	7	4	4	1	2	0.7493	0.8721	0.8061	83.09%
System	0	238	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0000	0.9835	0.9917	
Greet	10	0	131	0	0	0	0	0	0	1	0	1	0	0	1	0.9097	0.9161	0.9129	
Emotion	3	0	1	92	0	0	1	0	1	0	0	0	1	0	0	0.9293	0.8288	0.8762	
ynQuestion	2	0	1	0	29	6	0	0	1	0	0	0	1	1	0	0.7073	0.6744	0.6905	
whQuestion	1	0	2	0	3	57	0	0	0	0	0	0	0	0	0	0.9048	0.8382	0.8702	
Accept	8	0	0	1	0	0	5	0	0	0	2	4	0	0	0	0.2500	0.3333	0.2857	
Bye	0	0	0	1	0	0	0	10	0	0	0	0	0	0	0	0.9091	0.5556	0.6897	
Emphasis	2	0	1	1	0	0	0	0	9	0	0	0	0	0	0	0.6923	0.4286	0.5294	
Continuer	4	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0.5000	0.2941	0.3704	
Reject	6	0	0	0	0	1	0	1	0	0	3	0	2	0	0	0.2308	0.2143	0.2222	
yAnswer	0	0	0	0	0	1	2	0	1	0	0	3	0	0	0	0.4286	0.2500	0.3158	
nAnswer	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0.6000	0.2727	0.3750	
Clarify	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.5000	0.3333	0.4000	
Other Using Che				3	0	0	O sign	0	0	0	0 /소	0	0	0	3	0.3750	0.5000	0.4286	
I.	ар РО	S tags	3 - 1 3																Overall A
Using Che	ap PO	S tags	3 - 1 3	et tim	Jilon Villa	Jestion wh	Question PCC	gi bye	Lind	lasis Con	Reigi Reigi	VARS	nan	Swet Clair	Othe	Precision	<u>Recall</u>	F-score	
Using Che	ap PO දුරි 269	S tags	s sen de	et time	Jiton Vinos	Jestion who	Question PCG	8	Empl 10	nasis Conti	Reject 8	yAnsi 4	ner nere	onet Clarify	Othe 3	<u>Precision</u> 0.7390	Recall 0.8820	<u>F-score</u> 0.8042	
Using Che	ap PO	S tags	S GREAT GREAT O	16 0	Jilon	Jestion 2 and 2	Duesitor Page 5	8 0	Empl 10 0	Coni 9	Reigi Reigi	VANS	ner nere	Swei Ciaith	Other 3	Precision 0.7390 0.9958	Recall 0.8820 0.9793	F-score 0.8042 0.9875	
Using Chean Statement System Greet	ap PO	S tags  S tags  5  237	7 0 131	2	Stion Vinds 12 0 0	desilon which	Direction According to the Control of the Control o	8 0 0	######################################	Contraction of the contraction o	Relection of the control of the cont	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	nare 1 d 0 0	Daity Clairy 2 0	3 0 0	Precision 0.7390 0.9958 0.9357	Recall 0.8820 0.9793 0.9161	F-score 0.8042 0.9875 0.9258	
Using Chean Statement System Greet Emotion	ap PO	S tags  S tags  S tags  5  237  0 0	7 0 131	16 0 0	12 0 0 0	Jestion 2 0 1 0	Diesion S	8 0 0	10 0 0	9 1 1 0	Release of the control of the contro	4 0 0 0	1 0 0 1	Orally Orally O	3 0 0	Precision 0.7390 0.9958 0.9357 0.9375	Recall 0.8820 0.9793 0.9161 0.8108	F-score 0.8042 0.9875 0.9258 0.8696	
Statement System Greet Emotion ynQuestion	ap PO  269 0 7 2 4	S tags  S tags  S tags  5  237  0  0  0	7 0 131 1 2	16 0 0 90	12 0 0 0 24	2 0 1 0 4	Diesion  Die	8 0 0 0	10 0 0 1 1	9 1 1 0	Reference of the control of the cont	4 0 0 0 0 0 0	7, A.T. 7, A.T	Calif	3 0 0 0	0.7390 0.9958 0.9357 0.9375 0.6667	Recall 0.8820 0.9793 0.9161 0.8108 0.5581	F-score 0.8042 0.9875 0.9258 0.8696 0.6076	
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Figure C.40: Experiment Run 50: Emoticons Assigned "EMO" or "EMO2" Tags

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